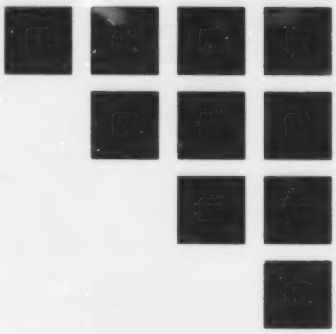
APPLIED RESEARCH BRANCH

Strategic Policy

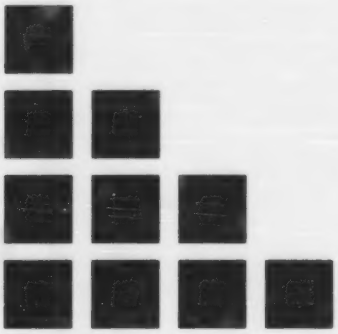


Labour-Market Responses to Volunteering: Evidence from the 1997 SGVP

R-00-5-1E

by
Rose Anne Devlin
June 2000

Research Paper



Human Resources Development Canada
Développement des ressources humaines Canada

Canada

101-00642/

Applied Research Branch
Strategic Policy
Human Resources Development Canada

Direction générale de la recherche appliquée
Politique stratégique
Développement des ressources humaines Canada

Labour-Market Responses to Volunteering: Evidence from the 1997 SGVP

R-00-5-1E

by
Rose Anne Devlin
June 2000

The views expressed in Applied Research Branch papers are the authors' and do not necessarily reflect the opinions of Human Resources Development Canada or of the federal government.

Les opinions exprimées dans les documents de la Direction générale appliquée sont celles des auteurs et ne reflètent pas nécessairement le point de vue de Développement des ressources humaines Canada ou du gouvernement fédéral.

■

The Research Paper Series includes studies and research conducted under the auspices of the Applied Research Branch of Strategic Policy (SP). Papers published in this series consist of secondary research in the form of background studies and literature reviews that support the research efforts of SP.

La série de documents de recherche comprend des études et des travaux de recherche réalisés sous l'égide de la Direction générale de la recherche appliquée, Politique stratégique (PS). Il s'agit notamment de recherches secondaires sous forme d'études de base et d'analyses documentaires qui appuient les efforts de recherche de PS.

Printed/Imprimé 2000
ISBN: 0-662-29339-8
Cat. No./N° de cat. MP32-29/00-5-1E

General enquiries regarding the documents published by the Applied Research Branch should be addressed to:

Publications Office
Applied Research Branch
Strategic Policy
Human Resources Development Canada
165 Hôtel de Ville Street, Phase II, 7th Floor
Hull, Quebec, Canada
K1A 0J2

Telephone: (819) 994-3304
Facsimile: (819) 953-9077
E-mail: research@spg.org
http://www.hrdc-drhc.gc.ca/arb

Si vous avez des questions concernant les documents publiés par la Direction générale de la recherche appliquée, veuillez communiquer avec :

Service des publications
Direction générale de la recherche appliquée
Politique stratégique
Développement des ressources humaines Canada
165, rue de l'Hôtel-de-Ville, Phase II, 7e étage
Hull (Québec) Canada
K1A 0J2

Téléphone : (819) 994-3304
Télécopieur : (819) 953-9077
Courrier électronique : research@spg.org
http://www.hrdc-drhc.gc.ca/dgra

Abstract

Using an earlier data set, Day and Devlin (1998) found that volunteers earned a premium on the paid labour market. This paper uses the Survey of Giving, Volunteering and Participating to examine whether the labour market continues to reward volunteers over and above their non-volunteering counterparts; and, if so, why the labour market might behave in this way.

The study finds that volunteers do indeed achieve higher earnings than non-volunteers, in the region of four per cent. In order to determine why this may be the case, the sample is separated into various sub-groups according to the sex of the individual, age, and educational level. Evidence suggests that the labour market may be rewarding volunteers as a result of the professional contacts that volunteers are making through their philanthropic activities.

This paper is part of the series *Labour Market Responses to Volunteering* which is comprised of:

- *Evidence from the 1997 SGVP*
- *Regional Differences*

Résumé

Avec les données d'une enquête précédente, Day et Devlin (1998) avaient constaté que les personnes qui font du bénévolat gagnent davantage sur le marché du travail que celles qui n'en font pas. Le présent rapport, qui se base sur l'Enquête sur le don, le bénévolat et la participation cherche à vérifier si le marché du travail continue de rémunérer davantage les personnes qui font du bénévolat et, dans l'affirmative, à découvrir les raisons d'un tel résultat.

Le rapport montre que les personnes qui participent à des activités bénévoles gagnent effectivement des salaires plus élevés que les non-bénévoles. L'écart salarial en faveur des personnes qui font du bénévolat est d'environ 4 %. Afin de déterminer les causes possibles de ce résultat, l'auteure étudie plus particulièrement certains sous-groupes de l'échantillon, établis sur la base du sexe, de l'âge et du niveau de scolarité. L'analyse suggère que le marché du travail rémunère davantage les bénévoles en raison des contacts professionnels que ceux-ci établissent dans le cadre de leurs activités philanthropiques.

Ce rapport fait partie de la série *Labour Market Responses to Volunteering*, qui comprend les documents suivants :

- *Evidence from the 1997 SGVP*
- *Regional Differences*

Acknowledgements

This paper was written under a contract from Human Resources Development Canada. I acknowledge the exceptional input of Kathleen Day on this project. I have also benefitted from discussions with Miles Corak and Dane Rowlands. Amornrat Apinunmahakul provided research assistance and Gilles Bérubé made useful comments on an earlier draft.

Table of Contents

Executive Summary ix

1. Introduction 1

2. Volunteers and the Paid Labour Market 3

3. Comparing VAS and SGVP Results 5

4. The SGVP Sample: Returns to Volunteering 13

4.1 Econometric Issues and Data 13

4.2 The Decision to Volunteer 16

4.3 The Impact of Volunteering on Earnings 21

4.4 Male and Female Volunteer Returns 27

5. Volunteering and the Paid Labour Market 38

5.1 Volunteering and Education 39

5.2 Volunteering and Age 45

6. The Labour Market and Volunteering: Concluding Remarks 53

References 57

Executive Summary

This paper uses the recent Survey of Giving, Volunteering and Participating (SGVP) to analyse the impact of volunteering on the paid labour market. It also examines the factors which affect the decision to volunteer. Several results are notable:

- In replicating, as much as possible, an earlier study done on the impact of volunteering on the paid labour market using the 1987 Volunteer Activity Survey (VAS), the results from the SGVP data set compare very favourably. For the restricted sub-sample under study in this part of the paper, volunteers appear to earn about 7 per cent higher returns on the labour market in comparison to their non-volunteering counterparts.

- Looking at a much larger sample of 9,945 employed individuals drawn from the SGVP, volunteers earn a premium on the labour market of about 4 per cent. That this figure is lower than the 7 per cent previously obtained can be largely explained by the fact that the earlier sample contained more men.

- The decision to volunteer is influenced by a number of characteristics. In this study we are able to include a few determinants not normally available, and found that:

    - individuals who also donate money to charity are more likely to volunteer;

    - being an immigrant typically has a negative impact on the probability of volunteering; however, this impact usually diminishes with the length of time an individual has been an immigrant;

    - individuals who have resided in their current abode for at least five years are more likely to volunteer than those with shorter tenures, lending some support to the notion that the sense of belonging to a community (one component of 'social capital') contributes positively to volunteering.

- Decomposing the sample into males and females confirms the results from the VAS survey that male volunteers earn a much higher return on the labour market than do female volunteers. Indeed, the estimated differential between male volunteers and non-volunteers is about14 per cent, whereas it is only 2 per cent between female volunteers and non-volunteers.

- University graduates who volunteer earn about 4 per cent higher earnings than their non-university graduate counterparts.

- Age matters a lot when determining the impact of volunteering on earnings: young volunteers (under 30) actually earn about 20 per cent less income than their non-volunteering counterparts; middle aged volunteers (30 - 59) earn a 6 per cent premium over non-volunteers; and, finally, 'old' volunteers (60+) who are still in the labour market,

earn about a 12 per cent premium over their non-volunteering counterparts. These results strongly suggest that volunteering is more of an 'investment' for future labour-market returns rather than something which yields an immediate payoff. The static nature of the SGVP data set prohibits further investigation of this issue.

- Virtually everyone is motivated to volunteer by the presence of an expected earnings differential, suggesting that labour-market effects do influence the decision to volunteer. The impact of the expected earnings differential is usually about 6 per cent: for every one unit increase in the expected earnings differential (in logarithms), the probability of volunteering will increase by 6 per cent.

- There are three reasons why the paid labour market may reward volunteers over non-volunteers: human capital acquisition, networking and signaling. The results that emerge whenever the sample is disaggregated according to sex, age, and education level seem to be more consistent with the networking hypothesis than the other two. These results suggest that volunteers are paid more on the labour market because of the contacts that they have made through volunteering, rather than through skill acquisition or signaling.

1. Introduction

Volunteers make an important contribution to Canadian society. According to the most recent survey of volunteer activity, 7.5 million people volunteered some 1.2 billion hours of their time between November 1996 and October 1997. Many social scientists have explored the variety of reasons why individuals volunteer: ranging, not surprisingly, from pure altruism to purely selfish motives. This paper focuses on but one of these reasons: to enhance labour market opportunities.

One of the reasons why individuals volunteer is to improve their labour market outcomes – a motive that has taken on the status of 'well-known fact' but which has only recently had some empirical verification. Using the 1987 Survey of Volunteer Activity (VAS), Day and Devlin (1998) examined whether the labour market rewarded volunteers. Because of data constraints, they had to use a sub-sample of the population that was not necessarily (indeed, not likely) representative of the population at large; other constraints meant that the data themselves were not ideal for the problem at hand. Nevertheless, their results appeared to be reasonably robust, and pointed to an average earnings premium awarded to volunteers in the range of 6-7 per cent.

In 1997, a new, more comprehensive, survey was undertaken which, among other things, again asked people to report on their volunteer activities.[1] This survey (the SGVP) represents an improvement over the earlier survey on a number of fronts, providing a rich source of data with which to address additional questions concerning the relationship between the paid labour market and the voluntary one. In addition, this new survey asks individuals about a variety of social capital indicators, like the length of time that they have lived in their current residence, which opens up another dimension for the analysis – namely exploring possible links between volunteering and social capital.

The main objectives of this study are threefold. First, it seems sensible to re-do the analysis of Day and Devlin (1998) using, as much as possible, a comparable sub-sample of the population to see if any substantial changes have occurred in the paid-voluntary labour market relationship

[1] The Survey of Giving, Volunteering and Participation (SGVP) was undertaken in collaboration with seven organizations: Statistics Canada, Human Resources Development Canada, the Canadian Centre for Philanthropy, Canadian Heritage, Health Canada, Volunteer Canada, and the Kahonoff Foundation's Non-Profit Sector Research Initiative.

over the past decade. Second, since the SGVP presents better data for the purposes of estimating the labour-market return to volunteering, a new analysis will be presented, encompassing a broader sample of the population than had previous work. The resulting estimates of the impact of volunteering on the paid-labour market are more representative of the population at large, and less subject to criticisms regarding their reliability. They form the paper's estimates of what is the payoff to volunteering in the labour market. Using this more reliable data set, the paper also separates individuals into several identifiable categories – on the basis of age, sex, and educational level – to see if one can identify for whom the labour-market returns are most pronounced. The third main objective of the study concerns why the labour market would reward volunteers differently than their non-volunteering counterparts. The literature has identified three possible explanations for this phenomenon: human capital acquisition, networking and signalling. The paper thus uses the data available in the SGVP to see whether it is possible to provide a clearer picture of the mechanism by which volunteers enhance their labour-market returns.

2. Volunteers and the Paid Labour Market

A small but respectable body of literature exists on the economics of volunteering.[2] Most of this work deals with the supply of volunteers – why individuals volunteer for jobs that entail a large public good component (e.g., Bilodeau and Slivinski, 1996), the influences on the decision to volunteer (e.g., Menchik and Weisbrod, 1987; Vaillancourt, 1994; Day and Devlin, 1996; and Freeman, 1997). Other work has focused on topics like the impact of volunteers on identifying needs in the community (e.g., Weeks and Aggleton, 1996), the demand for volunteer work (Emanuele, 1996), and the impact of government spending on volunteer activity (Day and Devlin, 1996).

Of this small body of literature, very few papers have been devoted to the relationship between volunteering and the labour market. A few papers have recognized the role of volunteering in enhancing labour-market opportunities: Mueller (1975) and Dicken and Blomberg (1988) suggest that volunteering is a means of gaining experience for women who are trying to re-enter the labour market. Recipients of social assistance are thought to volunteer to increase their employment opportunities (Rekart, 1997, p.98). Married women's participation in volunteer work has been influenced by 'human capital' considerations (Schram and Dunsing, 1981). That volunteer work provides valuable experience for anyone on the labour market is recognized by Clotfelter (1985, Ch.4) and Menchik and Weisbrod (1987); and the role of volunteering to target specific employment (e.g., firefighters) is empirically analyzed by Thompson and Bono (1993).

Only Day and Devlin (1998) specifically attempts to quantify the extent to which volunteering benefits individuals on the paid labour market.[3] To do this, they estimate earnings equations for a sub-sample of the population that contains both volunteers and non-volunteers, and then examine the difference between these two groups with the use of a dummy variable. The type of econometric analysis of this paper is constrained because the income data are available only in

[2] For instance, a search in the *Journal of Economic Literature* database comes up with 70 entries which contain the word "volunteers" as opposed to 8 759 entries with the words "human capital" or some 11 097 entries for "discrimination."

[3] Note that we are talking about formal volunteering, i.e., volunteering for a charitable organization, as opposed to informal volunteering, like shoveling your neighbour's driveway.

ranges. As a result, Day and Devlin use a procedure proposed by Stewart (1983) to deal with endogenous income groups. The model for J groups (income classes) can be written as:

$$\ln W_i^* = \beta' X_i + \epsilon_i , \qquad (1)$$

$$y_i = j \text{ if } A_{j-1} \leq \ln W_i^* < A_j , A_0 = -\infty , A_J = +\infty , \qquad (2)$$

where $\ln W_i^*$ is an unobservable random variable equal to the log of individual i's earnings, X_i is a vector of determinants of earnings, y_i is an observable discrete random variable that indicates to which income class individual i belongs, and the A_j represent the threshold values of $\ln W_i^*$. The likelihood function for this model, under the assumption that ϵ_i is normally distributed, can be found in Stewart (1983, 738).

The first question posed here concerns whether or not the new survey yields results that are comparable to those of the previous one of a decade ago. To this end, a sub-sample is created using the SGVP which largely mimics the data set used in Day in Devlin (1998), and a similar analysis is undertaken.

3. Comparing VAS and SGVP Results

For the purposes of comparing the results concerning the impact of volunteering on earnings across the VAS and SGVP, one must first create a sub-sample of individuals in the SGVP that is comparable to Day and Devlin (1998). It was not possible to create a sub-sample that was identical to Day and Devlin's sub-sample for a number of reasons. First, the occupational categories provided by the SGVP differed from that of the VAS. The VAS listed 49 categories of occupations, which were reduced to 19 classes for the purposes of analysis. The SGVP provides only 22 classes of occupations. Thus, for instance, while the groups *SCIENCE* and *ENGINEERING* were separated in the VAS they are lumped together in the SGVP. Furthermore, the VAS listed separately *protection services* (referred to as *SECURE* in Day and Devlin) no such category existed in the SGVP. The VAS public use file listed individual's ages categorically, whereas the SGVP file 12, used in this present study, had actual ages. The categories of schooling also differed between the two files. As a result, the variable *EXP* – defined as age minus years of schooling minus six – and EXP^2 will be measured slightly differently across the two samples. The income classes also differ across the two samples, with the earlier VAS providing eight income groups, the highest of which was $60,000 and above, and the SGVP providing nine income groups, with the highest being $100,000 and above.

The variables which represent the number of children in each household differed across the two samples. Thus, while *OWNKIDS1*, *OWNKIDS2*, and *OWNKIDS3* represents families with children aged 0-2, 3-5, and 6-15 respectively in the VAS sample, in the SGVP sample, these variables represent children aged 0-5, 6-12 and 13-17. The number of household members in the VAS sample is cut-off at nine whereas it may take any value in the SGVP sample. Finally, the VAS sample had a separate variable if the household had children in school (*KIDSCH*) whereas this information is embedded in the *OWNKIDS* variables in the SGVP sample.

Table 1 presents a breakdown of the full SGVP sample compared to the grouped-earnings sub-sample. A few points of worthy of note. Males are over-represented in the grouped sub-sample, as are married people – not too surprisingly given the fact that this sub-sample contains observations on single-wage earner households. Significantly more individuals have some sort

of diploma in the grouped-earnings sub-sample in comparison to the full sample, while fewer people have a university degree. The rural population is also under-represented in the grouped-earnings sample.

Table 1
Full SGVP sample compared to grouped-earnings model sample

	SGVP full sample		Grouped-earnings sample	
Variable	Volunteers (%)	Non-volunteers (%)	Volunteers (%)	Non-volunteers (%)
MALE	41	46	48	57
MARRIED	61	53	31	30
GRADESCH	6	16		
HIGHSCH	33	40	25	39
POSTSEC*	13	10	20	11
DIPLOMA*	29	26	45	40
UNIV*	19	8	7	3
CITY	46	50	50	53
RURAL	40	36	34	31
TOWN	14	14	16	15
NFLD	4	4	3	2
PEI	3	3	3	3
NS	8	7	8	5
NB	6	6	5	6
QUE	14	24	16	26
ONT	30	30	29	29
MAN	8	7	8	7
SASK	9	5	9	5
ALTA	9	7	9	9
BC	9	8	10	9
# observations	11206	7095	2810	1836

* These variables differ somewhat across samples. Note the discussion in the text on this matter.

Another significant difference between the VAS and the SGVP data set used in this paper is that the VAS reported a screening file which contained information on 37,426 individuals who answered the November 1987 Labour Force Survey. By contrast, the SGVP contains information on 18,301 respondents. The VAS sub-sample contains 5,147 observations from the original 37,426 while the SGVP sub-sample has 4,646 observations out of a total sample of 18,201.

Besides the differences noted above, the SGVP grouped-data sub-sample is remarkably similar to the VAS grouped-data sub-sample used in Day and Devlin. Using the econometric model reported in (1) and (2) above, estimated coefficients from the grouped-data model were obtained using the SGVP grouped-data sub set. Table 2 provides the definitions of the variables used in

the regressions. The estimated results are reported in tables 3 and 4. In order to compare the new estimates with the results obtained in the earlier analysis, the earlier results are also given. Whenever an asterisk is placed beside the variable name, this means that the SGVP variable differs somewhat in its definition in comparison to the VAS variable, as discussed earlier in the text.

Table 2
Variable names and definitions

Mnemonic	Description
INCOME	The reported income of individual
MALE	Dummy variable, 1 if male, 0 otherwise
MARRIED	Dummy variable, 1 if married, 0 otherwise
GRADESCH	No school, or elementary school only: **reference group**
HIGHSCH	Dummy variable, 1 if high school (some or completed), 0 otherwise
POSTSEC	Dummy variable, 1 if some post-secondary education, 0 otherwise
DIPLOMA	Dummy variable, 1 if post-secondary diploma, 0 otherwise
UNIV	Dummy variable, 1 if university degree, 0 otherwise
HHSIZE	Number of individuals residing in the household
OWNK05	Number of own children ages 0-5 years old
OWNK0612	Number of own children ages 6-12 years old
OWNK1317	Number of own children ages 13-17 years old
OWNK18PL	Number of children ages 18 years old or older living at home
FRENCH	Dummy variable, 1 if language spoken in interview is French, **reference group**
ENG	English spoken in interview
EXP	Experience*
EXP2	Experience squared
RURAL	Dummy variable, 1 if lives in area with a population of less than 15,000, 0 otherwise
TOWN	Dummy variable, 1 if lives in area with a population of 15,000-99,999, 0 otherwise
CITY	Population greater than 100,000: **reference group**
HOURS	Total usual weekly hours worked
NEWLAND	Dummy variable, 1 if landed immigrant within 3 years at time of survey
MEDLAND	Dummy variable, 1 if landed immigrant within 4 to 8 years at time of survey
OLDLAND	Dummy variable, 1 if landed immigrant over 8 years at time of survey
NEWRES	Dummy variable, 1 if lived in current residence less than 1 year, **reference group**
MEDRES	Dummy variable, 1 if lived in current residence 1 to 5 years
OLDRES	Dummy variable, 1 if lived in current residence more than 5 years
VOL	Dummy variable, 1 if individual volunteered in current year, 0 otherwise
GIVE	Dummy variable, 1 if individual gave at least one dollar to a registered charity, 0 otherwise
GOVT	Per capital provincial and local government spending by province, excluding debt and transfer payments

Note: The occupation variables (Science through Other) are dummy variables which take the value 1 if the individual worked in the given occupation and zero otherwise. We had data on 22 occupations which were grouped into 17 occupational categories (service occupations are the reference group). For the sake of brevity, we omit a detailed account of these groupings.

* We used the usual definition of experience (age - years of schooling - 6), where years of schooling were imputed for each level.

Table 3 reports the results from the grouped data earnings equations when one dummy variable *VOL* was entered into the estimating equation, where 1 signifies that the individual had been a volunteer over the past year whereas 0 means that he or she had not. The first point to note is that the traditional human capital variables all behave in a predictable manner. Males earn higher incomes than females, and the fact that one is married means than one's income is, on average, higher. The four variables that represent increasing levels of schooling (*HIGHSCH, POSTSEC, DIPLOMA, UNIV*) are all dummy variables, with individuals whose highest level of schooling is grade-school being the reference group. The estimated coefficients on each of these four groups follows the predictable pattern – they increase with the level of schooling – indicating that earnings increase with educational level. The size of the family (*HHSIZE*) appears to have a positive influence on earnings, while the presence of children at home (represented by the variables *OWNKIDS1, 2*, and *3*) exert a negative influence on children.

The estimated coefficients on *EXP* and EXP^2 are as expected: earnings increase with years of experience but at a decreasing rate. Relative to living in a city, individuals who live in a rural area or town tend to have lower earnings (although the influence of *TOWN*, this influence is statistically insignificant). Turning now to the seventeen occupational classifications, the results presented in table 3 seem to be quite sensible. Relative to service occupations – which have traditionally represented lower-waged jobs – all but farming pays higher earnings. The number of hours worked in a typical week (*HOURS*) is positively related to income. And, finally, the estimated coefficients on the provincial dummy variables displays the well-recognized pattern of regional income differences in Canada.

It is both interesting and reassuring to note that qualitatively, the results from the SGVP file are virtually identical to those from the VAS file. The only small difference is with respect to the level of significance of the *RURAL* and *TOWN* variables. The estimated coefficient on *RURAL* has a lower level of significance in the VAS sample as compared to the SGVP file, whereas statistically the estimated coefficient of *TOWN* is insignificant in the SGVP sample.

Besides these established human-capital variables, the grouped-earnings model includes a dummy variable which represents whether or not an individual volunteered over the past year.

Table 3

Grouped data earnings equations

(VAS data and SGVP data with dummy variable VOL)

Variables	VAS	t-ratio	SGVP	t-ratio
MALE	0.1666	8.44	0.1208	6.08
MARRIED	0.1366	5.95	0.0988	4.33
HIGHSCH	0.1548	5.16	0.1204	2.62
POSTSEC*	0.2469	6.39	0.3099	5.93
DIPLOMA*	0.3115	8.73	0.1864	3.97
UNIV*	0.5070	12.90	0.4108	6.79
HHSIZE*	0.0615	4.46	0.1468	15.89
OWNKIDS1*	-0.0846	- 3.74	-0.1564	-8.03
OWNKIDS2*	-0.0402	- 1.89	-0.1525	-8.85
OWNKIDS3*	-0.0453	- 3.35	-0.0940	-3.71
KIDSCH	-0.0216	- 0.80	n\a	
EXP*	0.0229	9.51	0.0164	7.65
EXP^{2*}	-0.0004	- 6.94	-0.0027	-5.98
RURAL	-0.0371	- 1.89	-0.0629	-3.12
TOWN	-0.0855	- 4.28	-0.0302	-1.21
SCIENCE*	0.2865	4.74	0.4786	10.10
ENGIN	0.3185	5.38	n\a	
SOCSC	0.1266	2.49	0.1694	3.21
TEACH	0.2956	7.03	0.3782	8.47
MED	0.3186	7.69	0.3521	8.35
ARTREC	0.0216	0.34	0.2446	4.43
CLERK	0.1870	5.96	0.2052	6.30
SALES	0.1577	4.20	0.1242	3.46
SECURE	0.2498	4.15	n\a	
MGMENT	0.3851	11.59	0.4242	12.37
FARM	-0.0665	- 1.37	-0.0173	-0.32
PRIMOCC	0.1316	2.14	0.3051	3.52
MINING	0.5354	6.70	0.5586	5.01
PROCESS	0.1820	4.04	0.2223	3.95
MACHINE	0.1805	3.50	0.3587	4.94
TRADES	0.1780	5.36	0.2247	6.62
TRANSP	0.1637	3.81	0.2088	4.22
OTHER	0.2319	4.82	0.2885	3.28
NFLD	-0.2652	- 7.19	-0.1082	-1.92
PEI	-0.2313	- 4.28	-0.1750	-3.49
NS	-0.1852	- 5.42	-0.1337	-3.63
NB	-0.1765	- 5.32	-0.1473	-3.70
QUE	-0.1075	- 4.10	-0.1437	-5.81
MAN	-0.1580	- 4.89	-0.1357	-4.00
SASK	-0.1273	- 4.20	-0.0945	-2.75
ALTA	-0.1085	- 4.17	-0.1226	-3.81
BC	-0.0280	- 1.02	-0.0302	-0.98
HOURS	0.0083	11.12	0.0064	9.35
VOL	0.0660	4.12	0.0775	4.31
Constant	8.9395	161.27	9.2257	146.38
Log (L)	-8962.98		-8956.806	
# observations	5147		4646	

* These variables differ somewhat across samples. Note the discussion in the text regarding these differences.

The estimated coefficient on *VOL* is positive and significant indicating that the volunteers in this sub-sample are earning higher incomes than their non-volunteering counterparts. The size of this estimated coefficient indicates that volunteers earn about 7 per cent higher incomes than do non-volunteers. This figure compares both in its magnitude and sign to the estimated results from the VAS study which found that volunteers earned about 6.6 per cent higher incomes.

In an effort to determine why volunteers appear to be earning higher incomes, table 4 separates volunteers in the SGVP according to eight different organization groups: health, education and social services (*HES*), arts and culture (*CULTURE*), development and housing (*DEVELOP*), religious organizations (*RELIGION*), environmental organizations and those dealing with law, advocacy and politics, and unions, (*CIVIC*), international organizations (*INTERNAT*), philanthropic organizations (*PHILANTH*), and other groups (*OTHER*). These groups broadly coincide with the seven VAS groups established in Day and Devlin (1998), however sufficient differences exist between the two sets of groups to warrant different variable names between the VAS and SGVP analyses. Looking at the second section of table 4 which reports the results with volunteers categorized by groups we find a couple of interesting differences between the VAS sample and the SGVP– differences which were masked when the dummy variable *VOL* was used.

Three volunteer groups have statistically significant estimated coefficients in the SGVP sample: *CIVIC*, *INTERNAT* and *PHILANTH*. The coefficients for the *CIVIC* and *PHILANTH* groups suggest that volunteers in these areas gain a positive premium on the job market. In particular, those who work in the civic group (which actually comprises a broad class of environmental, advocacy, political and union organizations) have about a 5 per cent premium over their non-volunteering counterparts. Interestingly, the premium for those volunteering for philanthropic organizations is about 15 per cent. Finally, according to the results presented in table 4, volunteers for international organizations earn, on average, about 15 per cent less than their non-volunteering counterparts. These results are in contrast to the VAS results in which individuals who volunteered for sports organizations or those dealing with the economy earned premia on the paid labour market, whereas those who volunteered for religious organizations saw a marked reduction, of about 18 per cent, in their earnings relative to non-volunteers. It is notable that

those who volunteered for religious organizations in the SGVP sample do not seem to be statistically different from their non-volunteering counterparts.

Table 4
Grouped data earnings equations
(VAS data and SGVP data with dummy variables for volunteer organizations)

Variables	VAS	t-ratio	SGVP	t-ratio
MALE	0.1607	8.12	0.1304	6.70
MARRIED	0.1375	6.00	0.1027	4.64
HIGHSCH	0.1545	5.16	0.1063	2.36
POSTSEC*	0.2492	6.47	0.1706	3.72
DIPLOMA*	0.3161	8.89	0.2943	5.76
UNIV*	0.5069	12.93	0.4029	6.81
HHSIZE*	0.0613	4.46	0.1489	16.66
OWNKIDS1*	-0.0820	- 3.56	-0.1608	-8.52
OWNKIDS2*	-0.0395	- 1.87	-0.1500	-8.95
OWNKIDS3*	-0.0454	- 3.37	-0.0992	-4.06
KIDSCH	-0.0170	- 0.63	n/a	
EXP	0.0230	9.58	0.0168	8.08
EXP^2	-0.0004	- 6.95	-0.0003	-6.37
RURAL	-0.0368	- 1.87	-0.0612	-3.11
TOWN	-0.0873	- 4.38	-0.0231	-0.95
SCIENCE*	0.2820	4.68	0.4686	10.16
ENGIN	0.3158	5.35	n/a	
SOCSC	0.1299	2.56	0.1953	3.80
TEACH	0.2913	6.95	0.3785	8.76
MED	0.3082	7.45	0.3752	9.17
ARTREC	0.0149	0.24	0.2472	4.63
CLERK	0.1854	5.93	0.2069	6.56
SALES	0.1520	4.06	0.1249	3.60
SECURE	0.2419	4.03	n/a	
MGMENT	0.3890	11.44	0.4224	12.70
FARM	-0.0789	- 1.63	-0.0020	-0.04
PRIMOCC	0.1222	1.99	0.2805	3.36
MINING	0.5334	6.70	0.5256	4.91
PROCESS	0.1798	4.00	0.2030	3.71
MACHINE	0.1752	3.41	0.3481	4.93
TRADES	0.1731	5.23	0.2305	6.98
TRANSP	0.1625	3.79	0.2132	4.44
OTHER	0.2239	4.67	0.2875	3.37
NFLD	-0.2623	- 7.13	-0.1210	-2.23
PEI	-0.2277	- 4.23	-0.1926	-3.90
NS	-0.1811	- 5.31	-0.1325	-3.72
NB	-0.1754	- 5.30	-0.1384	-3.58
QUE	-0.1126	- 4.30	-0.1353	-5.59
MAN	-0.1629	- 5.06	-0.1321	-4.01
SASK	-0.1282	- 4.24	-0.1057	-3.19
ALTA	-0.1081	- 4.17	-0.0985	-3.15
BC	-0.0317	- 1.15	-0.0182	-0.61
HOURS	0.0081	10.99	0.0062	9.35
Constant	8.9508	161.77	9.3124	134.08

Table 4 (Continued)

Variables	VAS	t-ratio	Variables	SGVP	t-ratio
HES	0.0277	1.24	HES	-0.0066	-0.38
SPORT	0.0791	2.78	CULTURE	0.0309	1.38
ECON	0.1818	1.89	DEVELOP	0.0031	0.09
RELIGION	-0.1788	-4.74	RELIGION	-0.0023	-0.83
CIVIC	-0.0988	-1.06	CIVIC	0.0502	1.94
MULTI	-0.0703	-1.12	INTERNAT	-0.2645	-3.25
OTHORGS	0.1587	2.71	PHILANTH	0.1530	3.20
			OTHER	-0.0890	-1.12
Log (L)	-8944.99		Log (L)	-8625.56	
# observations	5147		# observations	4543	

Note: The organizational groupings are different in the two samples because of the way the data were reported.
* These variables differ across samples. Note the discussion in the text on this matter.

As was argued in Day and Devlin, the fact that different volunteer organizations appear to have vastly different effects on earnings, and, in particular, both positive and negative effects, is taken as some evidence that volunteering is not simply a normal good that increases with income. It certainly appears that not all volunteering is created equally as far as the paid labour market is concerned.

Why does the paid labour market respond differently according to the organizations for which individuals volunteer? To address this question the paper now turns to a more detailed analysis of the SGVP data set, one that is no longer constrained by the limitations of the VAS data set as used by Day and Devlin.

4. The SGVP Sample: Returns to Volunteering

4.1 Econometric Issues and Data

One of the major constraints in the VAS data set was the fact that only household income was presented and this was given in ranges. Because individual income was not reported, the VAS sample had to be restricted to sole wage-earner households. The fact that the income was reported in ranges dictated the appropriate econometric methodology to employ. The SGVP sample reports individual income in levels which opens up other possibilities in terms of how to estimate the impact of volunteering on the labour market.

Using a dummy-variable approach to estimate the impact of volunteering implies that volunteering is constrained to affect only the constant term in the analysis. In other words, it restricts the estimated coefficients on all of the other variables to be the same for volunteers and non-volunteers. However, it is both conceivable and, indeed, quite likely that volunteering would change the impact of other human-capital variables in the model. For instance, the "experience" of a volunteer may be of a different quality than that of a non-volunteer. Hence, the estimated coefficient of this variable may differ between volunteers and non-volunteers.

One of the ways to deal with the fact that volunteering may affect the way in which the market reacts to various factors is to estimate separate earnings equations for volunteers and non-volunteers. In this way, both the intercept and slope terms may differ across the two types of individuals. The model to be estimated would be:

$$\ln W_{vi} = X_{vi}\beta_v + \epsilon_{vi}\,, \qquad (3)$$

$$\ln W_{ni} = X_{ni}\beta_n + \epsilon_{ni}\,, \qquad (4)$$

Here X_{ji} is a vector of individual i's characteristics (including her stock of human capital) and ϵ_{ji} represents a normally distributed random component, j=v,n. The subscript v indicates that the individual is a volunteer, while n indicates a non-volunteer.

A further econometric problem concerns the fact that individuals may be choosing to volunteer based on some unobservable personal trait that renders the sample of volunteers and non-volunteers biased in some undefinable way. This selection bias may be similar in principle to the selection that occurs between union and non-union workers: one can thus borrow from that literature to find a method for correcting this bias. One of the simplest ways to deal with this sample selection bias is to employ Heckman's two-stage procedure, the first stage of which is to estimate a probit model for the choice of becoming a volunteer, which is a function, among other things, of the expected gain in utility associated with volunteering. The gain in utility from volunteering may be written as I_i^*, which is assumed to be a function of the earnings differential associated with volunteer experience, $(\ln W_{vi} - \ln W_{ni})$; a vector of other characteristics, Z_i; and $\mu_i \sim N(0,1)$:

$$I_i^* = \alpha_0 + \alpha_1(\ln W_{vi} - \ln W_{ni}) + Z_i\gamma + \mu_i \qquad (5)$$

Instead of observing I_i^*, we observe the variable I_i which indicates whether or not the individual is a volunteer:

$$I_i = \begin{cases} 1 \text{ if } I_i^* > 0 \\ 0 \text{ if } I_i^* \leq 0 \end{cases} \qquad (6)$$

Together, equations (5) and (6) describe a standard probit model.

To estimate the model, the paper extends Heckman's (1979) two-stage technique in a manner suggested by Lee (1978). First a reduced-form probit model is estimated, obtained by substituting equations (3) and (4) into (5). Using the resulting parameter estimates, an inverse Mill's ratio is generated and added to equations (3) and (4). An insignificant coefficient for the inverse Mill's ratio in the two equations would imply that there is no simultaneous equations bias.[4] Finally, the estimated parameters from (3) and (4) are used to estimate the earnings

[4] Note that the estimation process used will not adequately control for simultaneity bias unless the assumption that the error terms are normally distributed is valid. In this case, an alternative test for simultaneity is the instrumental variables suggested by Duncan and Leigh (1985) and discussed by Robinson (1989).

differential due to volunteering for each individual; this estimate is then included in a structural probit model of the decision to volunteer. Thus, the paper will discuss the results from three types of equations: the structural probits, the earnings equations, and the reduced-form probits. The model outlined in expressions (3) - (6) may also be estimated using a maximum likelihood procedure in order to increase the efficiency of the estimates. The results presented below rely on the modified Heckman two-stage procedure as previously described.

The procedure above places no restrictions on the earnings equations for volunteers and non-volunteers. However, it does not yield an easily identifiable figure indicating the extent to which the earnings of volunteers and non-volunteers differ. It would be very useful to have such a figure in order to compare these estimates to the ones arising from the grouped-data model, as well as to compare the return to volunteering across different sub-populations. One possible solution to this dilemma is to undertake a decomposition procedure as first suggested by Blinder (1973) and Oaxaca (1973), and as recently implemented in a study of the male-female wage differential by Miller (1987) and others. Another possible way of obtaining an estimate of the average earnings differential between volunteers and non-volunteers would rely on a simply dummy variable approach which restricts all of the estimated coefficients in each equation to be equal except for the constant term. The estimated coefficient on the dummy variable representing volunteers provides an easy measure of the impact of volunteering on earnings.

Another point to note from the econometrics perspective concerns heteroscedasticity. Typically, the assumption of constant variances across groups of individuals in a micro-data sample is violated – i.e., the problem of heteroscedasticity. Typically, the nature of this heteroscedasticity is not known and hence a correction like that introduced by White (1980) is used. In this case, however, because the sample weights associated with every individual are available, one can think about the SGVP data set as containing information on 18,201 'groups' of individual, and one can use the normalized weights to recalculate the 'correct' importance of each group in the sample.

Several data issues are present in this study. One of the important issues to be addressed concerns the sample of individuals for whom an econometric analysis should be conducted. Several refinements may be made to the large sample which, arguably, render the data set more

appropriate for the analysis at hand. Because the analysis is focused on the relationship between the labour market and volunteering, the paper restricts the SGVP sample to people who are employed, either part-time or full-time. After eliminating those respondents who refused to answer questions of interest, including those with zero income, we are left with a sub-sample of 9,945 individuals.

The final point to note regarding the data set concerns the use of weights. In the previous analysis, because Day and Devlin (1998) did not use sample weights, the grouped-data model reported in tables 3 and 4 also omits the use of weights.[5] However, the SGVP data set does over-represent the number of volunteers in the sample. Thus, to ensure that no bias is introduced into the analysis as a result of this over-sampling of volunteers, sample weights are used in the remaining analysis. Note that these weights are normalized in the estimation procedures in order to avoid the problems associated with 'blowing-up' the sample in a way which results in implausibly low standard errors.

4.2 The Decision to Volunteer

The Heckman two-stage model allows one to look separately at the decision to volunteer as well as those factors that determine an individual's earnings. Before discussing the results, it is useful to say a few words about the variables that influence the decision to volunteer.

The SGVP data set provides a rich array of variables that potential influence the decision to volunteer. Indeed, this is the richest data set to-date to deal with this question. In addition to the usual variables that one would include in such an equation – like the characteristics of the individual (age, sex, marital status, education level, the presence of children, place of residence, employment status) – several other factors that have hitherto not been taken into account may be added to this list. For instance, respondents were asked about whether they had immigrated to Canada and how long ago. To the extent that one would expect recent immigrants to be less sure of the formal volunteering process in Canada, this might affect their abilit to enter into such an activity. Furthermore, the length of time in the country would surely also influence how

[5] One may note, however, that all of the estimations were also undertaken using weighted data with no qualitative difference.

'connected' an individual would feel to the community, and thus his or her desire to volunteer. Hence, the probit model included three variables which measured the length of time from first immigrating to Canada: *NEWLAND*, *MEDLAND* and *OLDLAND* depending upon whether it had been three years or less, four to eight years, or over eight years years since immigrating to Canada.

Additional information regarding how connected an individual may feel to the community may be proxied by how long they actually have lived in their current residence. The longer one lives in a community, the more cohesive one's connection to the community and thus the more apt one might be to volunteer. The recent surge of literature on social cohesion and social capital certainly speaks to the importance of community for the well-being of its residents.[6] Here, we can examine, to some degree, the extent to which high social capital affects volunteering. Three variables were thus constructed depending upon whether the individual was a new resident of less than one year (*NEWRES*, which was the base case), a medium-term resident of one to five years (*MEDRES*), or a long-term resident (*LONGRES*).

Elsewhere it has been argued that government expenditure may influence an individual's volunteer activities: as government spending increases people may reduce their volunteer hours, or decide not to volunteer altogether; alternatively, the may increase their volunteer activities to the extent that government expenditures help support the volunteer effort (Day and Devlin, 1996). Although this paper focuses only on the labour-market effects of volunteering, and the attendant *decision*, to volunteer, it is useful to test whether or not government spending influences this decision. To this end, per capita consolidated provincial and local government spending is included as a determinant in the probit estimation.

[6] The literature on social capital and social cohesion has been expanding rapidly in recent years. See for instance, Putnam (1995), and the host of papers presented at the International Symposium on "The contribution of human and social capital to sustained economic growth and well-being" sponsored by the OECD and Human Resources Development Canada, held in Quebec City in March 2000. On the specific notion of social cohesion, Woolley (forthcoming) suggests an alternative hypothesis, that more volunteering brings about more social cohesion rather than the other way around.

Finally, because the SGVP also asks individuals about their charitable giving, one can examine the extend to which donating money affects the decision to volunteer.[7] Some have argued that money and time may be considered as substitutes for each other: those who have less time and more money give money, and vice versa. However, some empirical work suggests otherwise (Brown and Lankford, 1992). The variable GIVE is a dummy variable which equals 1 if the individual donates money and 0 otherwise.

Table 5 reports the reduced-form probit estimates of the decision to volunteer for the entire sub-sample. Several interesting results emerge. For instance, being male exerts a positive influence on the decision to volunteer, while being married has the opposite effect. The probability of volunteers increases with the level of education, as seen from the increasing positive estimated coefficients on the education variables. The presence of children has opposing effects: young children under five years old negatively effect the decision to volunteer while older children exert a positive influence on this decision. Interestingly, the age of the individual does not seem to influence the decision to volunteer, whereas people who responded to the interview questions in English were more likely to volunteer than their French-speaking counterparts. On this latter point, one might note that speaking French in the interview is likely to be picking up mostly residents of Quebec. Traditionally, individuals in Quebec have tended to volunteer less than others – perhaps due to the historic role played by the church in providing social services. It is important to further note that we are talking only of volunteering conducted through formal organizations, this paper ignores the important contributions made by informal volunteering in our society.[8]

[7] A small literature exists which examines the extent to which time and money giving are related. Arguably, the decisions to give money and time are taken simultaneously. In the model presented in this paper, giving is taken to be an exogenous variable.

[8] About 82 per cent of individuals in the SGVP survey report doing informal volunteering (e.g., watering a neighbour's lawn, shopping for an elderly neighbour, and so on). The provinces with the highest level of informal volunteering are Saskatchewan (with 89 per cent of its respondents reporting informal volunteering) and British Columbia (with 86 per cent reporting informal volunteering). The lowest rate of informal volunteering is found in Quebec, at 74 per cent of respondents reporting this activity.

Table 5

Reduced-form probits, entire sub-sample

Variables	est. coef.	t-ratio
MALE	0.103	3.15
MARRIED	-0.095	-2.65
HOURS	-0.009	-8.36
HIGH	0.389	4.39
DIPLOMA	0.580	6.49
POSTSEC	0.736	7.77
UNIV	0.909	9.52
OWNK05	-0.059	-2.24
OWNK0612	0.258	11.27
OWNK1317	0.240	8.15
OWNK18PL	0.117	3.92
RURAL	0.194	5.36
TOWN	0.104	2.28
MANAGER	-0.018	-0.32
SCIENCE	-0.070	-0.91
SOCSC	0.445	4.00
TEACH	0.260	3.39
RELIGION	0.595	2.49
HEALTH	-0.043	-0.60
ARTS	0.179	1.87
CLERK	-0.041	-0.77
SALES	0.018	0.31
FARM	0.096	1.09
FISH	-0.298	-0.92
FOREST	0.068	0.29
MINING	0.261	1.07
PROCESS	-0.183	-1.84
MACHINE	-0.359	-2.99
FABRIC	-0.352	-5.34
CONSTRUC	-0.101	-1.32
TRANSP	-0.338	-3.93
MATERIAL	-0.455	-4.02
OTHER	0.044	0.29
ATLANTIC	0.011	0.16
QUE	-0.125	-1.34
PRAIRIE	0.215	4.51
BC	0.062	1.32
NEWLAND	-0.417	-3.57
MEDLAND	-0.492	-4.17
OLDLAND	-0.230	-4.91
MEDRES	-0.015	-0.25
LONGRES	0.222	3.81
ENG	0.195	2.54
REL	0.192	6.62
AGE	-0.002	-1.14
GIVE	0.679	14.81
GOVT	-0.000	-0.45
CONSTANT	-1.442	-2.58
Log likelihood (0)	-6418	
# observations	9945 (3448 at 1)	

From table 5 we see that religious people are much more likely to volunteer than are less religious people. And, people who live in rural communities tend to volunteer more than those who live in towns, and people in towns volunteer more than their city-dwelling counterparts. The region of residence also matters: those who live in the Atlantic region, Quebec and British Columbia are not statistically different than Ontarians regarding their decision to volunteer, whereas those living in the Prairies are more likely to volunteer than their Ontario counterparts. Finally, the number of hours worked has a predictable negative impact on the decision to volunteer.

Looking at the impact of being an immigrant on the decision to volunteer, the results are generally as predicted: *all* immigrants are less likely to volunteer formally in comparison to non-immigrant individuals; however, those who are longer-term immigrants are more likely to volunteer relative to the other two groups. Surprisingly, medium-term immigrants (four to eight years) are less likely to volunteer compared to shorter-term immigrants – however the difference in the estimated coefficients is not very large. Either this difference is a statistical artifact, or it may reflect the fact that new immigrants may volunteer slightly more than those who immigrated a few years earlier in order to make some contacts, or simply because they tend to work fewer hours when they first arrive in the country.

The term of residence of an individual in their current abode also appears to matter, and in a predictable manner. Longer-term residents are more likely to volunteer in comparison to either the medium- or short-term residents. This result certainly accords with the notion that 'belonging' to a community increases social cohesion – which results in an individual increasing his or her commitment to the community, leading to, among other things, increased community volunteering.

The results from table 5 suggest that individuals who give to charities are *more* likely themselves to volunteer. However, one must be cautious when interpreting this variable because most people in this sample give to charities (some 90 per cent) so the fact that an individual gives to charities does not say very much about the characteristics of this individual vis à vis the rest of the population. Nevertheless, the estimated coefficient on *GIVE* supports the view that charitable giving and volunteering are complementary not substitute activities.

Finally, government spending does not appear to influence the decision to volunteer in our sub-sample. One should be cautious in putting too much weight on this result because, given that we are using a cross-sectional data set, the only variation that we observe is inter-provincial differences in spending. Given that a host of other factors also vary inter-provincially – like, for instance, provincial tax rates (which influence the 'price' of charitable giving), these various effects may be cancelling each other out in the data set.

4.3 The Impact of Volunteering on Earnings

The second stage in the Heckman procedure requires the estimation of earnings equations for volunteers and non-volunteers. Ordinary-least-squares regressions are run on separate earnings equations for volunteers and non-volunteers in which the inverse Mill's ratio term is added to deal with any selectivity associated with the decision to volunteer.

Table 6 presents the results from estimating separate earnings equations for volunteers and non-volunteers. Turning first to the volunteers one finds that the estimated coefficients behave generally as expected: males earn higher incomes in comparison to females, being married positively affects income as does the number of hours worked. Earnings also increase with level of education. Household size has a negative impact on earnings, while the number of children in the various age groups has a generally positively effect. The estimated coefficient on experience behaves as expected, and people who live in rural areas earn less than those who live in towns, who, in turn, earn less than those living in cities. The impact of occupations classifications seems to be sensible. Finally, the inverse Mill's ratio (*INVMILLS*) is negative and statistically significant, implying that some sort of selection bias was indeed present in this sub-sample. The non-volunteer earnings equation displays much the same pattern as the volunteer sample; once again, the estimated coefficient on the inverse Mill's ratio indicates the presence of a selection bias.

Table 6
Weighted OLS regressions
(Dependent variable = log income, volunteers' versus non-volunteers' earning equations)

Variables	Non-volunteers		Volunteers	
	est. coef.	t-ratio	est. coef.	t-ratio
MALE	0.338	11.89	0.316	13.26
MARRIED	0.118	3.95	0.079	2.87
HOURS	0.020	18.49	0.023	26.05
HIGH	0.068	1.11	0.035	0.41
DIPLOMA	0.173	2.62	0.190	2.11
POSTSEC	0.111	1.52	0.148	1.57
UNIV	0.282	3.60	0.346	3.57
HHSIZE	-0.072	-6.42	-0.099	-8.27
OWNK05	0.156	6.59	0.165	7.40
OWNK0612	0.018	0.66	0.003	0.13
OWNK1317	-0.001	-0.04	0.045	1.82
OWNK18PL	0.022	0.75	0.052	2.02
EXP	0.041	11.56	0.048	14.77
EXPSQU	-0.001	-7.75	-0.001	-9.66
RURAL	-0.258	-7.63	-0.229	-8.56
TOWN	-0.164	-3.98	-0.142	-4.27
MANAGER	0.547	11.11	0.526	12.85
SCIENCE	0.504	7.46	0.514	9.24
SOCSC	0.066	0.50	0.277	4.05
TEACH	0.515	6.60	0.404	8.02
RELIGION	-0.088	-0.30	-0.408	-3.12
HEALTH	0.638	9.93	0.465	9.15
ARTS	0.239	2.59	0.198	2.93
CLERK	0.281	6.10	0.264	6.72
SALES	0.079	1.54	0.095	2.19
FARM	0.119	1.48	0.042	0.68
FISH	0.215	0.93	0.550	1.99
FOREST	0.192	0.94	0.434	2.59
MINING	0.505	2.26	0.525	3.34
PROCESS	0.315	4.14	0.495	6.11
MACHINE	0.493	5.69	0.423	4.09
FABRIC	0.338	6.55	0.356	6.43
CONSTRUC	0.205	3.20	0.301	5.17
TRANSP	0.234	3.60	0.395	5.52
MATERIAL	0.224	2.83	0.245	2.42
OTHER	0.182	1.33	0.423	3.82
ATLANTIC	-0.132	-2.14	-0.140	-3.03
QUE	0.098	1.53	-0.057	-1.13
PRAIRIE	-0.162	-3.47	-0.142	-4.29
BC	0.022	0.53	0.038	1.11
INVMILLS	-0.532	-6.90	-0.321	-5.53
GOVT	-0.000	-0.39	0.000	2.13
CONSTANT	8.280	15.85	7.909	20.67
# observations	3440		6505	
Adj.R-squared	0.3909		0.4037	

To determine the impact of volunteering on the earnings of these two groups, one can undertake a decomposition procedure along the lines developed by Blinder (1973) and Oaxaca (1973) in the context of race discrimination. This procedure allows one to determine if volunteers earn higher income because they have larger stocks of human capital (e.g., are more highly educated – the "stock" effect) or because their human capital is being valued more highly on the labour market (the "return" effect). This decomposition entails determining the following:

$$\overline{lnW}_{vi} - \overline{lnW}_{ni} = X_i(\hat{\beta}_v - \hat{\beta}_n) , \qquad (7)$$

which can be rewritten as:

$$\hat{lnW}_{vi} - \hat{lnW}_{ni} = \hat{B}_v(\bar{X}_v - \bar{X}_n) + \bar{X}_n(\hat{B}_v - \hat{\beta}_n) \qquad (8)$$

where the bar over a variable denotes the sample mean, and a hat denotes the OLS estimate of the coefficient. The first term on the right-hand size reflects the "stock effect" while the second term is the "return effect."

Table 7 presents this decomposition; a positive number in the stock effect column implies that volunteers have a higher stock of the variable in question in comparison to non-volunteers. A positive return means that volunteers gain a higher return from that variable than do non-volunteers. Several interesting points are worth noting from this table. Looking at the first column of numbers one finds that the average stock effect – the effect that measures the stock of human capital variables – is *negative* implying that non-volunteers have a higher average stock of human capital in comparison to volunteers. The next column, however, gives the return effect which is positive, meaning that volunteers receive a higher return to a given stock of human capital in comparison to non-volunteers. For the stock effect, one cannot help but notice the strongly negative influence played by the selection-correction variable (*INVMILLS*) which clearly overwhelms the positive influence of other factors. It is difficult to interpret the coefficient on the inverse Mill's ratio variable because it is highly non-linear, depending upon the density functions of the standard normal distribution. The constant term exerts a clearly positive effect on the return to human capital. Experience, too, seems to differ significantly between volunteers

and non-volunteers, with volunteers having a lower stock effect but a considerably higher return effect in comparison to non-volunteers. Overall, the average differential estimated from the two-stage Heckman model is about 4.25%.[9]

Table 7
Decomposing the volunteer/non-volunteer earnings differential into stock and return effects

Variables	Stock effect (%)	Return effect (%)
MALE	-2.29	-1.11
MARRIED	0.43	-2.23
HOURS	-4.27	9.00
EDUCATION	4.07	0.22
FAMILY	-2.82	-6.43
EXPERIENCE	0.83	8.97
POPULATION	-1.00	1.29
OCCUPATION	0.34	0.79
PROVINCE	-2.07	-2.51
INVMILLS	-46.07	-10.76
CONSTANT	0	59.93
Total	-52.86	57.11
	average differential 4.25	

As mentioned earlier, a simple estimate of the impact of volunteering on earnings may be obtained from estimating one earnings equation for a sample which includes both volunteers and non-volunteers, and including a dummy variable to capture any difference between the two samples. One problem with using the inverse-Mills ratio approach to correct for sample selection in this joint equation, is that this ratio is highly correlated with the dummy variable capturing whether or not an individual is a volunteer. This would appear to be a problem in our sample, and can account for the different estimated coefficients on *VOL* with and without the inverse-Mill's ratio.[10] For instance, running a pooled earnings equation (with both volunteers and non-volunteers) yields wildly different estimates of the return to volunteering, depending upon whether the inverse-Mill's ratio is included or not (in both specifications the coefficient estimate

[9] This estimate of the earnings differential is approximated by $(\ln W_v - \ln W_n)*100$. Technically speaking, because earnings are in logs, the actual differential should be calculated as $(\exp(\ln W_v - \ln W_n) - 1)*100$. When the differential is small, the approximation method is accurate.

[10] The correlation between *VOL* and *INVMILLS* is 0.92

on *VOL* is positive and statistically significant).[11] Interestingly, it is only the estimated coefficient on VOL that is radically different in the specifications with and without the inverse-Mills ratio; all other coefficients are reasonably stable.[12] For comparison purposes, table 8 provides the estimates from these two specifications.[13] The estimated coefficient on VOL in the equation without the inverse-Mill's ratio points to an earnings differential of about 3 per cent between volunteers and non-volunteers – a figure which accords with our earlier estimates from the Heckman procedure.

Does the presence of an expected earnings differential affect the probability than an individual will volunteer? To examine this question, the computed earnings differentials from the various specifications above are introduced into a structural probit for the decision to volunteer; these results are reported in table 9. In contrast to the reduced-form probit results, the sex of the individual does not seem to matter for the decision to volunteer, nor does being married. All of the other variables behave generally as discussed for the reduced-form probits. Turning to the variable of interest, *EARNDIF*, one finds that individuals appear to be motivated to volunteer by the expected earnings differential. Interpreting the marginal effect of this variable is complicated by the fact that *EARNDIF* is computed in logarithmic terms and hence is not independent of the level amount to which it is applied. From table 9 we see that the 'marginal impact' of this variable is some 6 per cent. This means that if the differential were to increase by, say, 10 per cent, then individuals would increase their probability of volunteering by 0.06 *times* 0.10 or 0.6 per cent.

---

[11] Both the inverse Mill's ratio and a term interacting this ratio with VOL are included in the regression, see Robinson (1989).

[12] To investigate further the impact of volunteering on earnings whilst accounting for any simultaneity bias, two different instrumental variables approaches were undertaken. The first one simply instrumented VOL in a standard earnings equation. The second approach was more complicated, and followed the suggestion by Duncan and Leigh (1989). In this approach, the probability of being a volunteer is estimated using a probit model, and then this estimate (p-hat) is used in an earnings equation which includes both volunteers and non-volunteers. P-hat is then interacted with all variables and included in the equation itself as an instrument for VOL. Both instrumental variables procedures also yielded implausible high estimates of the earnings differential.

[13] The inverse inverse Mill's ratio included in the pooled equation comes from a probit equation that *differs* from the reduced-form probits used to generate the inverse Mill's ratio for the separate earnings equations. Remember that the reduced-form probits discussed earlier included various independent variables that would not otherwise influence the decision to volunteer but do influence earnings.

Table 8

Weighted OLS earnings equations with and without selectivity correction

(INVMILLS and VOL*INVMILLS)

Variables	Without correction		With correction	
	est. coef.	t-ratio	est. coef.	t-ratio
MALE	0.335	19.04	0.346	19.75
MARRIED	0.098	5.14	0.116	6.09
HOURS	0.019	30.52	0.022	32.28
HIGH	0.162	3.82	0.060	1.38
DIPLOMA	0.339	7.75	0.176	3.82
POSTSEC	0.316	6.76	0.115	2.30
UNIV	0.537	11.18	0.266	4.91
HHSIZE	-0.086	-11.54	-0.081	-10.85
OWNK05	0.150	9.85	0.160	10.54
OWNK0612	0.075	5.10	0.003	0.20
OWNK1317	0.077	4.29	0.014	0.74
OWNK18PL	0.066	3.64	0.031	1.69
EXP	0.045	19.66	0.044	19.26
EXPSQU	-0.001	-12.96	-0.001	-12.89
RURAL	-0.178	-9.21	-0.252	-12.31
TOWN	-0.110	-4.41	-0.159	-6.31
MANAGER	0.554	18.15	0.535	17.58
SCIENCE	0.495	11.83	0.486	11.69
SOCSC	0.338	5.40	0.312	5.01
TEACH	0.527	12.45	0.521	12.39
RELIGION	-0.124	-0.95	-0.138	-1.06
HEALTH	0.573	14.62	0.558	14.33
ARTS	0.286	5.29	0.264	4.91
CLERK	0.272	9.40	0.263	9.15
SALES	0.096	3.01	0.087	2.76
FARM	0.122	2.52	0.116	2.43
FISH	0.203	1.28	0.213	1.35
FOREST	0.290	2.30	0.295	2.35
MINING	0.561	4.31	0.571	4.42
PROCESS	0.303	5.99	0.313	6.23
MACHINE	0.390	6.65	0.404	6.92
FABRIC	0.260	7.77	0.265	7.96
CONSTRUC	0.226	5.53	0.211	5.19
TRANSP	0.201	4.65	0.193	4.47
MATERIAL	0.146	2.69	0.133	2.46
OTHER	0.295	3.51	0.280	3.35
ATLANTIC	-0.109	-2.97	-0.141	-3.85
QUE	-0.053	-1.43	0.040	1.06
PRAIRIE	-0.092	-3.50	-0.161	-5.95
BC	0.020	0.79	0.026	1.03
INVMILLS			-0.550	-10.54
VOLINV			0.211	3.96
GOVT	0.000	1.18	0.000	0.68
VOL	0.028	1.71	0.688	9.55
CONSTANT	7.874	25.98	7.839	26.01
# observations	9945		9945	
Adj. R-squared	0.3901		0.3970	

Table 9
Structural probit, decision to volunteer

	est. coef.	t-ratio	marg. eff.
EARNDIF	0.160	41.00	0.061
MALE	0.011	0.34	0.004
MARRIED	-0.008	-0.21	-0.003
HOURS	-0.010	-7.91	-0.004
HIGH	0.426	4.46	0.162
DIPLOMA	0.626	6.54	0.238
POSTSEC	0.801	7.84	0.305
UNIV	1.082	10.87	0.411
OWNK05	-0.068	-2.38	-0.026
OWNK0612	0.258	10.42	0.098
OWNK1317	0.162	4.79	0.062
OWNK18PL	0.113	3.00	0.043
RURAL	0.137	3.70	0.052
TOWN	0.018	0.38	0.007
ATLANTIC	-0.037	-0.57	-0.014
QUE	-0.056	-0.53	-0.021
PRAIRIE	0.231	4.85	0.088
BC	0.143	2.66	0.054
NEWLAND	-0.304	-1.97	-0.116
MEDLAND	-0.329	-2.18	-0.125
OLDLAND	-0.127	-2.19	-0.049
MEDRES	0.082	1.21	0.031
LONGRES	0.286	4.45	0.109
ENG	0.183	1.99	0.070
REL	0.229	7.05	0.087
AGE	-0.002	-1.23	-0.001
GIVE	0.689	13.10	0.262
GOVT	-0.000	-0.82	-0.000
CONSTANT	-1.548	-2.77	-0.589
# observations	9945 (3448 at one)		
Log likelihood (0)	-6418.1		

4.4 Male and Female Volunteer Returns

One of the important questions to ask is whether the labour market reacts in the same way to male and female volunteers. Evidence from the 1987 VAS suggests that it is males who, indeed, earn a premium for volunteering while females do not (Day and Devlin 1997). To explore this question further, the analysis undertaken in sub-section 4.3 was redone with the sub-sample separated according to the sex of the individual.

Table 10 presents the reduced-form probit results for both males and females separately. The decision to volunteer for the two groups depends on remarkably similar factors, ones that are consistent with the earlier discussion for the pooled sample. Once again, being married has a negative influence on the decision to volunteer, while level of education exerts a positive impact. For males, the presence of young children has no impact on this decision, while it has a significantly negative impact for women. Further, the presence of older children (18 years of age and older) continues to have a positive influence on this decision for males but is insignificant for females. Being an immigrant has a negative impact on volunteering for males, however, for females, it is only the estimated coefficient on *OLDLAND* which is negative *and* statistically significant. In other words, for females, recent immigrants as well as those who have been in the country for a medium length of time (four to eight years) behave the same as other individuals in terms of their decisions to volunteer; for longer-term immigrants, they are less likely to volunteer than their non-immigrant counterparts. That women and men immigrants behave differently when it comes to volunteering is not surprising: perhaps women, who are more likely to stay at home, become involved with community activities in order to integrate more quickly into the neighbourhood. Long-term immigrant women who are already integrated into the community may not feel that volunteering would help them in that capacity; hence, they become more like their male counterparts. It is useful to bear in mind that we are talking only of formal volunteering here.

A final difference between males and females concerns the variable *ENG*: speaking English in the survey interview rather than French had an insignificant impact on the decision to volunteer for males but a positive and significant impact for the female group. This result may reflect a bit the types of jobs undertaken by each sex. Even though occupation is controlled for in this analysis, the categories may be too broad as to pick up any language-skill differences across occupations. For instance, speaking English for women who are more likely to go into clerical positions, is a definite asset while in the traditionally male-dominated occupations like construction and transportation, linguistic skills are perhaps less important.

Table 10

Reduced form probits for males and females, decision to volunteer

Variables	Male		Female	
	est. coef.	t-ratio	est. coef.	t-ratio
MARRIED	-0.103	-1.81	-0.097	-2.10
HOURS	-0.008	-4.61	-0.012	-7.33
HIGH	0.432	3.83	0.405	2.53
DIPLOMA	0.563	4.94	0.633	3.93
POSTSEC	0.760	6.10	0.751	4.53
UNIV	0.891	7.13	0.963	5.77
OWNK05	-0.012	-0.32	-0.124	-3.23
OWNK0612	0.238	7.12	0.279	8.75
OWNK1317	0.296	6.82	0.187	4.63
OWNK18PL	0.185	4.05	0.056	1.40
RURAL	0.204	3.80	0.183	3.70
TOWN	0.113	1.68	0.082	1.29
MANAGER	-0.085	-0.97	0.060	0.81
SCIENCE	-0.123	-1.19	0.151	1.12
SOCSC	0.506	2.23	0.421	3.37
TEACH	0.512	3.61	0.190	2.08
RELIGION	-0.056	-0.16	1.270	1.49
HEALTH	0.034	0.22	-0.046	-0.57
ARTS	0.240	1.78	0.063	0.45
CLERK	-0.057	-0.55	-0.028	-0.46
SALES	0.052	0.58	-0.054	-0.69
FARM	0.002	0.02	0.252	1.75
FISHFOR	-0.195	-0.87	0.424	0.78
MINING	0.216	0.80	0.128	0.13
PROCESS	-0.138	-1.10	-0.390	-1.92
MACHINE	-0.334	-2.38	-0.913	-2.14
FABRIC	-0.359	-3.97	-0.449	-3.75
CONSTRUC	-0.147	-1.55	0.928	2.03
TRANSP	-0.421	-3.89	0.041	0.20
MATERIAL	-0.530	-3.80	-0.137	-0.56
OTHER	-0.138	-0.69	0.349	1.37
ATLANTIC	0.010	0.10	-0.014	-0.16
QUE	-0.116	-0.86	-0.159	-1.21
PRAIRIE	0.221	3.18	0.187	2.83
BC	0.047	0.68	0.064	0.97
NEWLAND	-0.635	-3.89	-0.011	-0.06
MEDLAND	-0.799	-4.50	-0.112	-0.67
OLDLAND	-0.270	-3.93	-0.179	-2.74
MEDRES	-0.015	-0.17	-0.012	-0.13
LONGRES	0.237	2.79	0.219	2.68
ENG	0.090	0.82	0.297	2.73
REL	0.221	5.29	0.161	3.94
AGE	-0.001	-0.45	-0.003	-1.43
GIVE	0.767	12.14	0.597	8.52
GOVT	-0.000	-0.14	-0.000	-0.64
CONSTANT	-1.590	-1.95	-1.090	-1.39
# observations	4904 (1559 at one)		5041 (3460 at one)	
Log likelihood (0)	-3066.4		3351.1	

The selectivity-corrected earnings equations for both sexes behaved as expected (table 11). Turning first to the earnings equations for male volunteers and non-volunteers, one finds one notable qualitative difference concerning the impact of education: the estimated coefficients of *DIPLOMA* and *UNIV* are statistically stronger for non-volunteers than for volunteers. In other words, education has a stronger effect on the labour market for non-volunteers than for volunteers, a result that is a bit surprising. Similarly, occupational classification seems to play a statistically stronger role in explaining the earnings of non-volunteers than of volunteers. These results suggest that there is something about being a volunteer that overwhelms the usual human capital factors. One explanation may lie in some part on the fact that the activity of volunteering is emitting a signal about the desirable traits of the individual – a signal that overwhelms, for instance, the impact of education or even occupational class. While possible, this explanation seems unlikely given the tradition importance accorded education in the labour market. A more plausible explanation of why volunteering has such a strong impact, is that it is providing a network of contacts through which employment opportunities are enhanced. Section 5 explores in more detail the links between volunteering and the paid labour market.

Looking at the earnings equations of female volunteers and non-volunteers, we find a few differences between these two groups as well as across the sexes. In contrast to males, education is *more* important in explaining earnings for female volunteers than for female non-volunteers. Similarly, occupational classifications are statistically more likely to explain earnings for female volunteers than for female non-volunteers. In other words, education and occupational classification are better at explaining female volunteer earnings and male non-volunteer earnings than their non-volunteering (volunteering) counterparts. Thus, whatever mechanism is driving the labour market returns to volunteering seems to function much better for male volunteers than for female volunteers. This observation suggests that rather than acting as a signal, volunteering influences earnings via networking. Male volunteers successfully network, while female volunteers have to rely more heavily on the traditional signals associated with education and occupational classification to explain their earnings.

Table 11

Weighted OLS earnings equations for male and female volunteers and non-volunteers

Variables	Non-volunteers				Volunteers			
	Males		Females		Males		Females	
	est. coef.	t-ratio	est. coef.	t-ratio	est. coef.	t-ratio	est. coef.	t-ratio
MARRIED	0.193	4.64	0.019	0.44	0.204	4.85	0.015	0.41
HOURS	0.013	9.38	0.029	15.49	0.017	14.06	0.026	18.65
HIGH	0.048	0.65	0.030	0.26	-0.081	-0.78	0.310	1.91
DIPLOMA	0.188	2.42	0.065	0.50	0.093	0.87	0.436	2.61
POSTSEC	0.094	1.04	0.102	0.82	0.037	0.32	0.421	2.45
UNIV	0.253	2.70	0.306	2.13	0.200	1.70	0.652	3.67
HHSIZE	-0.069	-5.19	-0.078	-3.72	-0.082	-5.13	-0.131	-7.28
OWNK05	0.136	4.50	0.182	4.73	0.149	4.91	0.183	5.41
OWNK0612	0.026	0.78	0.043	0.93	0.023	0.79	0.010	0.30
OWNK1317	-0.060	-1.46	0.051	0.98	0.050	1.44	0.059	1.70
OWNK18PL	0.058	1.46	-0.004	-0.09	0.043	1.17	0.075	2.12
EXP	0.045	9.93	0.043	7.18	0.053	11.63	0.047	9.78
EXPSQU	-0.001	-7.02	-0.001	-5.08	-0.001	-8.21	-0.001	-6.48
RURAL	-0.233	-5.37	-0.257	-4.85	-0.204	-5.42	-0.210	-5.59
TOWN	-0.144	-2.6	-0.195	-3.08	-0.141	-3.06	-0.099	-2.09
MANAGER	0.461	6.81	0.588	8.15	0.313	5.08	0.681	12.38
SCIENCE	0.443	5.55	0.660	4.64	0.319	4.40	0.659	6.70
SOCSC	-0.095	-0.47	0.161	1.03	-0.454	-4.35	0.511	6.24
TEACH	0.199	1.47	0.628	6.28	0.151	1.80	0.522	8.27
HEALTH	0.711	5.61	0.649	8.23	0.305	2.98	0.596	10.06
ARTS	0.046	0.39	0.445	3.10	0.140	1.52	0.193	1.89

Table 11 (Continued)

Variables	Non-volunteers				Volunteers			
	Males		Females		Males		Females	
	est. coef.	t-ratio	est. coef.	t-ratio	est. coef.	t-ratio	est. coef.	t-ratio
CLERK	0.220	2.80	0.305	5.11	0.146	1.97	0.366	7.80
SALES	0.123	1.78	0.055	0.73	-0.030	-0.47	0.170	2.87
FARM	0.126	1.34	0.161	0.96	-0.079	-0.93	0.171	1.82
FISHFOR	0.231	1.44	0.389	0.62	0.252	1.55	0.742	2.15
MINING	0.521	2.34	0.946	0.74	0.243	1.42	1.650	3.58
PROCESS	0.214	2.40	0.405	2.64	0.283	2.97	0.742	3.99
MACHINE	0.403	4.30	0.824	2.78	0.233	2.09	0.093	0.21
FABRIC	0.311	4.77	0.189	2.02	0.168	2.43	0.375	3.21
CONSTRUC	0.167	2.35	0.729	1.27	0.092	1.33	0.631	2.29
TRANSP	0.217	2.95	0.356	1.74	0.272	3.15	0.214	1.38
MATERIAL	0.179	2.04	0.256	1.21	0.098	0.81	0.143	0.73
OTHER	0.213	1.38	0.005	0.02	0.223	1.57	0.493	2.75
ATLANTIC	-0.157	-2.23	-0.086	-1.07	-0.112	-1.96	-0.258	-4.67
QUE	0.008	0.20	0.089	1.52	0.015	0.36	0.008	0.15
PRAIRIE	-0.133	-2.84	-0.146	-2.48	-0.110	-2.75	-0.236	-6.05
BC	0.034	0.69	-0.015	-0.24	0.079	1.72	0.034	0.77
INVMILLS	-0.581	-6.74	-0.347	-2.43	-0.303	-4.37	-0.277	-2.74
CONSTANT	8.670	76.88	7.990	48.02	9.250	55.04	8.350	37.71
# observations	1859		1581		3045		3460	
Adj. R-squared	0.3499		0.3933		0.3542		0.391	

To examine any earnings differentials between the two groups, we can again decompose their respective earnings equations into stock and return effects from volunteering. Table 12 presents this decomposition for males (columns (1) and (2)) and females (columns (3) and (4)). Looking, first, at the male decomposition one finds that male volunteers are more likely to be married than male non-volunteers. The stock of hours worked is lower for male volunteers, but the return to hours worked are much larger for male volunteers than male non-volunteers. Male volunteers have slightly more experience than do non-volunteers, but the return to that experience is considerably higher for volunteers than for non-volunteers. In contrast to table 7, the occupational stock effect is slightly smaller for volunteers, while the return to occupations is much higher for non-volunteers than for volunteers. Male volunteers are more highly educated, on average, than their non-volunteering counterparts, but the return to this education is lower than that given to male non-volunteers. The return to experience for male volunteers is considerably higher than that given to male non-volunteers. Once again, the selectivity correction exerts a large negative impact on the stock effect, and the constant term a large positive impact on the return effect. Taking all the effects together yields an estimated average earnings differential between male volunteers and non-volunteers of about 14 per cent.

Table 12
Decomposing the volunteer/non-volunteer earnings differential for males and females

Variables	Male earnings		Female earnings	
	Stock effect (%)	Return effect (%)	Stock effect (%)	Return effect (%)
MARRIED	1.65	0.67	0.05	-0.22
HOURS	-0.69	18.27	-5.52	-11.13
EDUCATION	3.69	-9.25	4.55	31.56
FAMILY	-1.88	-2.08	-3.32	-14.12
EXPERIENCE	1.18	8.99	1.04	6.80
POPULATION	-0.66	1.06	-1.25	2.86
OCCUPATION	-1.14	-9.23	2.66	4.49
REGION	-1.23	1.71	-2.47	-6.39
INVMILLS	-42.52	-13.39	-39.44	-4.04
CONSTANT	0	58.65	0	35.68
Total	-41.61	55.40	-43.71	45.47
	average 13.79		**average 1.76**	

The decomposition from the female earnings equations tells a different story. For instance, the stock of hours of female volunteers is lower than that of their non-volunteering counterparts, and the labour-market return to hours is also lower. Once again, volunteers have a larger stock of education and, unlike males, female volunteers are rewarded more highly than are female non-volunteers for this education. Female volunteers are slightly more experienced, and the return to this experience is much higher for volunteers than for non-volunteers. The inverse Mill's ratio exerts a negative effect on both the stock and return effects, and the constant term exerts a large positive impact on the return. Overall, however, the estimated average earnings differential arising from this decomposition is less than 2 per cent, considerably lower than the almost 14 per cent displayed by male volunteers and non-volunteers.

The result that females do not seem to be rewarded as highly on the paid labour market as are their male counterparts accords with the earlier results reported in Day and Devlin (1997) from the 1987 VAS data set. However, this result is also rather troubling since it suggests that there continues to exist some reasons why the paid labour market is treating women differently. Is it because of the types of organizations for which women volunteer? To investigate whether these organizations differ across the sexes, table 13 presents the characteristics of individuals who volunteer for each organization separated by sex. Note that surprisingly few differences exist between the characteristics of males and females for each category of organization. The one main difference is that proportionately more married males volunteer for each group than married females. It would seem that the results from table 12 are not easily explained. They are, however, more consistent with the networking story, than for either the signaling or skill-acquisition since, presumably, neither the acquisition of skills nor signals of unobservable characteristics are gender specific. Networking is the only avenue through which gender-based discrimination may persist.

The last question to ask concerns the earnings differential for both groups and how it may affect the probability of volunteering. For both males and females, the estimated coefficient on *EARNDIF* is positive and significant (table 14). Interestingly, its marginal impact is about the same across the two groups: 6.2 per cent for women and 5.9 per cent for men. Thus, even though

Table 13

SGVP sample: Characteristics of females and males who volunteer for 12 categories of voluntary organizations

Variables	Arts		Education		Health		Social Sciences		Environment		Development	
	Females (%)	Males (%)	Females (%)	Males (%)	Females (%)	Males (%)	Females (%)	Males (%)	Females (%)	Males (%)	Females (%)	Males (%)
MARRIED	53	0	51	58	51	59	51	59	49	58	50	59
GRADESCH	11	0	14	16	12	15	12	14	15	16	14	15
HIGHSCH	39	0	39	38	38	38	38	37	40	38	39	38
POSTSEC*	12	0	11	10	11	10	12	11	11	10	11	10
DIPLOMA*	28	0	26	25	28	26	27	26	26	26	27	26
UNIVERS*	11	0	10	11	10	12	11	12	9	11	9	10
CITY	47	0	52	49	50	49	49	48	51	47	50	47
RURAL	38	0	33	38	35	37	35	39	34	39	35	40
TOWN	15	0	15	13	15	14	15	14	15	13	15	13
NFLD	4	0	3	4	4	4	4	4	4	4	4	4
PEI	3	0	3	3	3	3	3	3	3	3	3	3
NS	7	0	7	7	8	7	7	8	7	7	7	7
NB	6	0	6	6	6	6	6	6	6	6	6	6
QUE	19	0	24	23	21	23	22	21	24	22	24	24
ONT	30	0	30	30	31	30	29	30	30	30	30	29
MAN	8	0	7	6	7	6	7	7	7	6	7	6
SASK	7	0	6	6	6	6	6	6	6	6	6	6
ALTA	8	0	6	8	7	8	7	8	6	8	7	8
BC	9	0	8	8	8	8	8	9	8	8	8	8
# observations	6097	0	4153	3404	5088	3726	5713	4457	3930	3405	4105	3587

Table 13 (Continued)

Variables	Law		Philosophy		International		Religious		Union		Other	
	Females (%)	Males (%)	Females (%)	Males (%)	Females (%)	Males (%)	Females (%)	Males (%)	Females (%)	Males (%)	Females (%)	Males (%)
MARRIED	50	58	50	58	49	58	53	62	50	58	49	57
GRADESCH	15	16	15	16	16	17	13	15	15	16	15	17
HIGHSCH	40	38	40	39	40	39	39	37	40	38	40	39
POSTSEC*	11	10	11	10	11	10	11	10	11	10	11	10
DIPLOMA*	26	25	27	25	26	25	28	26	26	26	26	26
UNIVERS*	9	11	8	10	8	10	10	13	8	10	8	10
CITY	52	49	52	49	51	48	47	47	52	49	51	48
RURAL	33	38	33	38	33	38	39	40	33	38	33	38
TOWN	15	13	15	14	15	13	14	13	15	13	15	13
NFLD	4	4	3	4	4	4	4	4	4	4	4	4
PEI	3	3	3	3	3	3	3	3	3	3	3	3
NS	7	7	7	7	7	7	8	7	7	7	7	7
NB	6	6	6	6	6	6	7	6	6	6	6	6
QUE	24	23	24	23	25	23	19	20	24	23	25	23
ONT	30	30	31	31	30	30	30	31	30	30	30	30
MAN	7	6	7	7	7	6	8	7	7	6	7	6
SASK	5	5	6	5	6	5	7	7	6	6	5	5
ALTA	6	8	6	7	6	8	7	8	6	8	6	8
BC	8	8	8	8	8	8	8	8	8	8	8	8
# observations	3942	3371	3908	3326	3772	3207	5364	4045	3770	3278	3749	3222

female volunteers are not rewarded nearly as highly on the paid-labour market, they are motivated to volunteer by the expected earnings differential just as much as are their male counterparts.

Table 14

Structural form probits for males and females, decision to volunteer

Variables	Male			Female		
	est. coef.	t-ratio	marg. eff.	est. coef.	t-ratio	marg. eff.
EARNDIF	0.160	28.36	0.059	0.156	29.058	0.062
MARRIED	0.017	0.27	0.006	-0.044	-0.887	-0.017
HOURS	-0.009	-5.02	-0.003	-0.010	-5.797	-0.004
HIGH	0.454	3.79	0.168	0.406	2.375	0.162
DIPLOMA	0.628	5.22	0.232	0.625	3.665	0.249
POSTSEC	0.825	6.22	0.305	0.778	4.410	0.310
UNIV	1.119	8.80	0.414	1.064	6.102	0.424
OWNK05	-0.045	-1.12	-0.017	-0.104	-2.492	-0.041
OWNK0612	0.230	6.37	0.085	0.280	8.192	0.112
OWNK1317	0.199	3.97	0.074	0.128	2.807	0.051
OWNK18PL	0.125	2.20	0.046	0.102	2.040	0.041
RURAL	0.119	2.19	0.044	0.154	3.027	0.061
TOWN	0.015	0.21	0.005	0.015	0.227	0.006
ATLANTIC	-0.028	-0.30	-0.011	-0.030	-0.338	-0.012
QUE	0.016	0.10	0.006	-0.187	-1.306	-0.074
PRAIRIE	0.249	3.60	0.092	0.220	3.341	0.088
BC	0.161	2.04	0.059	0.107	1.471	0.043
NEWLAND	-0.543	-2.58	-0.201	0.006	0.027	0.003
MEDLAND	-0.563	-2.47	-0.208	-0.113	-0.553	-0.045
OLDLAND	-0.132	-1.53	-0.049	-0.117	-1.488	-0.047
MEDRES	0.117	1.16	0.043	0.061	0.667	0.025
LONGRES	0.311	3.27	0.115	0.276	3.192	0.110
ENG	0.135	0.98	0.050	0.214	1.751	0.085
REL	0.303	6.53	0.112	0.140	3.068	0.056
AGE	-0.003	-1.28	-0.001	-0.001	-0.588	-0.000
GIVE	0.770	10.74	0.285	0.576	7.303	0.230
GOVT	-0.000	-0.40	-0.000	-0.000	-0.385	-0.000
CONSTANT	-1.799	-2.21	-0.665	-1.473	-1.899	-0.587
# observations	4904 (1559 at one)			5041 (3460 at one)		
Log likelihood (0)	-3066.4			-3351.8		

The question why male and female volunteers may be treated differently on the labour market is a complicated one, depending, at least in part, on the reason *why* volunteering should matter at all on this market. Thus, the male-female question is left aside in order to tackle this broader question of why volunteering seems to matter.

5. Volunteering and the Paid Labour Market

The analysis above points to the strong likelihood of a labour-market return to volunteering. The magnitude of this return appears to be about 4 per cent in general, but is considerably higher for males (14 per cent) than for females (2 per cent). Why would the labour market 'reward' volunteers over and above their non-volunteering counterparts? Three explanations have been suggested by the literature: human capital, networking and signaling. On the face of it, the results presented above cannot discern which of these three mechanisms is at play, although the observation that education and occupational classification do not explain well the earnings of male volunteers certainly favours the networking explanation over the other two. We turn now to a more detailed discussion of the three mechanisms through which volunteers may earn a premium on the paid labour market.

Perhaps volunteers are paid a premium on the labour market because either they have increased their stock of human capital by, for instance, the acquisition of additional skills, or they have boosted the quality of existing skills. The labour-market is thus rewarding individuals for these enhancements. Alternatively, volunteering may simply be providing individuals with the opportunity to gain experience either in a specific occupation or, more generally, in the 'working' world (albeit as an unpaid worker).

Several examples exist of this latter phenomenon. One of the reasons attributed to volunteer firefighters is that they gain the experience necessary for becoming paid firefighters (Thompson and Bono, 1993). However, it may also be argued that volunteering in this manner provides an entre into the right 'network' from which firefighters are chosen. Volunteers work for hospitals ('candy-stripers') when they seek a career in the health field. Ivy league business schools are perceived to admit students from among those with an array of volunteer experience. And so on.

Another reason why volunteers gain a higher return on the labour market is because volunteering provides individuals with access to useful contacts. It belongs to the rank of 'well-known fact' that men who used to (still do?) volunteer for service clubs like the Rotary would do so often to

further employment opportunities.[14] Another way of thinking about networking is that is provides a means to 'screen' potential employees (or service providers and the like): it is the informal network that determines if someone would be a worthy employee or provide a quality service (Saloner, 1985).

A third avenue through which volunteers may gain better returns on the labour market in comparison to non-volunteers is signaling. The fact that an individual engages in volunteer activity just might signal something about an unobservable yet desirable characteristic of this individual. The notion that certain behaviour signal others about the 'quality' of an individual is certainly not a new concept: college diplomas and university degrees often signal to potential employers more about hidden characteristics than about the presence of specific skills *per se*. It is thus quite plausible that by undertaking a voluntary activity an individual is sending a signal about an entirely unrelated, but desirable, trait to a prospective employer.

How can one determine the extent to which any or all of the above phenomena explain the volunteer premium? To try to answer this question, the data set used in this paper is disaggregated in two different ways. The first disaggregation separates the sample according to education level on the grounds that the highly educated individuals are less likely to seek volunteering as a means of enhancing human capital – hence providing support for the other two explanations. Secondly, the sample can be separated on the basis of age. Since older individuals are less likely to volunteer to acquire human capital, looking at how the labour market treats older volunteers versus non-volunteers will contribute to our understanding of how the labour market operates in this regard.

5.1 Volunteering and Education

One of the clearest indicators of human-capital acquisition is education. In most of the estimates presented thus far, education plays an important role in explaining an individual's earnings. Moreover, the level of education of an individual also matters. It seems sensible, therefore, to

[14] Anyone who thinks that 'networking' is a thing of the past need only look at a recent dinner-speaker invitation (March 23, 2000 presentation) sent out by the Ottawa Economics Association in which it is clearly written that 5:30pm - 7:00 pm is devoted to "bar and networking"!

posit that the more highly educated a person is, the less likely that he or she would use volunteering, *per se*, to acquire human capital. Thus, separating the sample into those with and without a university degree, and examining the impact of volunteering on earnings for these groups may shed some light on the mechanism through which volunteering influences the paid labour market.

Table 15 presents the reduced-form probit results when the sample is separated into those with and without a university degree.[15] Comparing the reduced-form probit equations across these two groups, ignoring any differences in the occupational effects which are less surprising, a few notable points emerge. For instance, regional effects are much more pronounced for the non-university educated group than for the university group, which is predictable to the extent that education causes individuals to be more aware of the need to volunteer. Differences also exist regarding the impact of being an immigrant in the decision to volunteer. For both groups, being a new immigrant has a negative impact on the decision to volunteer. However, for the university group, being a 'medium-term' immigrant also has a negative impact on this decision, whereas it does not affect the non-university group's decision to volunteer. Finally, being a long-term immigrant has a negative impact on the decision to volunteer for the non-university educated group while it is inconsequential for the university-educated group.

Speaking English has a positive impact on the decision to volunteer for the university group but no impact on others. By contrast, as a university-educated person ages, he or she is less likely to volunteer, whereas age appears to be an insignificant determinant of this decision for those without a university degree.

Turning to the selectivity-corrected earnings equations for the various groups, table 16, one finds remarkably few qualitative differences between volunteers and non-volunteers who are university graduates and those who are not. For the most part, the determinants behave as expected. To see if there are any differences in the implied earnings differential between these two groups, we turn again to decompositions of the earnings equations.

[15] Some of the occupational classifications had to be eliminated for the university group because of lack of observations.

Table 15

Reduced-form probits, sample separated by educational level

Variables	University		Non-university	
	est. coef.	t-ratio	est. coef.	t-ratio
MALE	0.141	2.03	0.098	2.60
MARRIED	-0.130	-1.68	-0.096	-2.36
HOURS	-0.012	-4.36	-0.009	-7.29
HIGH			0.405	4.47
POSTSEC			0.745	7.69
DIPLOMA			0.591	6.47
OWNK05	-0.124	-2.39	-0.034	-1.12
OWNK0612	0.223	4.39	0.262	10.12
OWNK1317	0.284	4.00	0.235	7.20
OWNK18PL	0.133	1.78	0.120	3.63
RURAL	0.364	3.59	0.175	4.45
TOWN	-0.037	-0.34	0.122	2.39
MANAGER	-0.251	-1.48	0.011	0.18
SCIENCE	-0.241	-1.32	-0.042	-0.44
SOCSC	0.243	1.18	0.527	3.21
TEACH	0.051	0.29	0.370	3.06
RELIGION	0.157	0.49	1.080	2.52
HEALTH	-0.020	-0.10	-0.114	-1.38
ARTS	0.158	0.68	0.163	1.48
CLERK	-0.202	-1.04	-0.042	-0.73
SALES	-0.407	-2.04	0.050	0.81
FARM	-0.018	-0.05	0.100	1.07
FISH	4.948	0.00	-0.275	-0.82
FOREST	-1.171	-0.94	0.140	0.56
MINING	5.618	0.00	0.236	0.95
PROCESS	-0.224	-0.53	-0.173	-1.65
MACHINE	6.047	0.00	-0.357	-2.89
FABRIC	-0.169	-0.55	-0.340	-4.90
CONSTRUC	0.180	0.46	-0.093	-1.17
TRANSP	0.135	0.34	-0.342	-3.81
MATERIAL	-0.776	-1.42	-0.429	-3.66
OTHER	-1.009	-2.22	0.151	0.93
ATLANTIC	0.103	0.66	-0.014	-0.19
QUE	0.301	1.49	-0.231	-2.15
PRAIRIE	0.179	1.60	0.225	4.23
BC	0.105	0.96	0.065	1.22
NEWLAND	-0.330	-1.78	-0.482	-3.12
MEDLAND	-1.191	-5.50	-0.137	-0.94
OLDLAND	0.069	0.67	-0.290	-5.43
MEDRES	-0.073	-0.62	0.018	0.25
LONGRES	0.318	2.70	0.237	3.47
ENG	0.770	5.03	0.048	0.54
REL	0.260	4.12	0.182	5.54
AGE	-0.010	-2.69	-0.000	-0.29
GIVE	0.740	5.97	0.677	13.56
GOVT	-0.000	-0.65	-0.000	-0.29
CONSTANT	-0.037	-0.03	-1.452	-2.34
# observations	1995 (974 at one)		7950 (2515 at one)	
Log likelihood (0)	-1382.3		-4961.8	

Table 16

Weighted OLS earning equations, sample separated by education, non-volunteers versus volunteers

Variables	University				Non-university			
	Non-volunteers		Volunteers		Non-volunteers		Volunteers	
	est. coef.	t-ratio	est. coef.	t-ratio	est. coef.	t-ratio	est. coef.	t-ratio
MALE	0.299	3.82	0.170	3.69	0.347	11.30	0.384	13.68
MARRIED	0.142	1.68	0.142	2.56	0.099	3.08	0.050	1.57
HOURS	0.007	2.13	0.023	12.27	0.022	18.45	0.021	21.60
					0.093	1.52	0.060	0.69
					0.155	2.10	0.239	2.62
					0.223	3.35	0.201	2.09
HHSIZE	-0.112	-2.53	-0.114	-3.58	-0.065	-5.53	-0.093	-7.16
OWNK05	0.235	3.42	0.127	2.52	0.138	5.39	0.173	6.88
OWNK0612	0.050	0.62	0.025	0.55	0.023	0.79	0.018	0.74
OWNK1317	0.040	0.38	-0.038	-0.69	0.000	0.01	0.077	2.78
OWNK18PL	0.077	0.77	0.137	2.37	0.019	0.63	0.036	1.27
EXP	0.050	4.17	0.036	4.73	0.043	11.32	0.054	14.53
EXPSQU	-0.001	-3.08	-0.000	-2.55	-0.001	-7.61	-0.001	-10.00
RURAL	-0.470	-3.38	-0.236	-3.77	-0.243	-6.98	-0.208	-7.08
TOWN	-0.102	-0.78	-0.061	-0.85	-0.169	-3.89	-0.146	-3.92
MANAGER	0.573	2.90	0.562	5.08	0.530	9.97	0.513	11.20
SCIENCE	0.462	2.22	0.554	4.53	0.524	6.47	0.456	6.57
SOCSC	0.341	1.32	0.221	1.75	-0.106	-0.57	0.355	3.56
TEACH	0.568	2.74	0.507	4.62	0.276	2.27	0.114	1.49
RELIGION	0.394	1.01	-0.495	-2.42	-1.073	-1.75	-0.234	-1.24
HEALTH	0.937	4.16	0.487	3.98	0.580	8.40	0.462	7.83
ARTS	0.449	1.66	0.059	0.39	0.216	2.13	0.252	3.24
CLERK	0.101	0.44	0.085	0.67	0.289	6.17	0.287	6.97
SALES	-0.021	-0.09	0.232	1.68	0.087	1.64	0.075	1.66
FARM	-0.026	-0.05	-0.080	-0.42	0.105	1.30	0.062	0.96
FISH					0.152	0.67	0.479	1.68
FOREST	-1.495	-2.04	-0.492	-0.40	0.349	1.65	0.423	2.53
MINING					0.475	2.14	0.508	3.18
PROCESS	-0.149	-0.39	-0.089	-0.28	0.316	4.09	0.498	5.99
MACHINE					0.458	5.28	0.372	3.58
FABRIC	0.136	0.46	0.203	0.90	0.319	6.05	0.311	5.43
CONSTRUC	0.180	0.45	-0.207	-0.78	0.180	2.77	0.281	4.70
TRANSP	0.484	1.22	-0.483	-1.72	0.208	3.15	0.412	5.58
MATERIAL	-1.088	-1.98	0.196	0.46	0.245	3.07	0.210	2.03
OTHER	0.100	0.24	0.439	0.82	0.189	1.30	0.396	3.53
ATLANTIC	-0.240	-1.41	-0.130	-1.58	-0.105	-1.86	-0.222	-4.84
QUE	0.025	0.26	0.075	1.16	0.057	1.64	-0.024	-0.64
PRAIRIE	-0.288	-2.54	-0.132	-2.31	-0.122	-3.10	-0.181	-5.64
BC	-0.100	-0.91	0.000	0.01	0.031	0.76	0.058	1.60
INVMILLS	-0.314	-2.05	-0.273	-2.86	-0.488	-5.68	-0.246	-3.70
CONSTANT	9.173	30.79	9.140	56.09	7.975	83.48	8.510	59.22
# observations	431		1564		3009		4941	
Adj. R-squared	0.2991		0.2627		0.3855		0.4179	

As before, the earnings equations were decomposed into stock and return effects in order to compare further the volunteer/non-volunteer earnings differential once level of education was held constant. The results from this decomposition are given in table 17. University graduates who are also volunteers are more likely to be married, and they have higher 'stocks' of experience and a slightly higher occupation 'stock' relative to non-volunteers. In sum, non-volunteers have a greater stock of human capital than do volunteers. In the return column, it is notable that university graduates have a considerably higher return effect to *HOURS*. Overall, this decomposition suggests that university graduates who are volunteers gain a premium on the labour market of about 2.5 per cent over their non-volunteering counterparts. Thus, even for the highly educated, volunteering seems to make a difference on the paid labour market.

Table 17
Decomposing the volunteer/non-volunteer earnings differential for university graduates and non-university graduates

Variables	University earnings		Non-university earnings	
	Stock effect (%)	Return effect (%)	Stock effect (%)	Return effect (%)
MALE	-0.55	-6.59	-3.08	1.98
MARRIED	0.31	0.01	0.31	-2.92
HOURS	-3.65	64.57	-4.57	-2.23
EDUCATION			3.41	-1.27
FAMILY	-2.77	-4.94	-2.43	-5.69
EXPERIENCE	3.41	-5.33	1.25	13.39
POPULATION	-2.03	4.59	-1.22	1.55
OCCUPATION	0.28	-2.88	-0.77	1.54
REGION	-2.69	1.55	1.55	-4.77
INVMILLS	-38.28	1.11	-35.56	-12.04
CONSTANT		-3.28		53.54
Total	-46.25	48.80	-44.47	43.08
	average 2.55		**average -1.39**	

Looking at the last two columns of table 17, the story changes for non-university educated individuals. The stock of education of volunteers in this group is higher than that of non-volunteers, whereas the return to this education is lower. Furthermore, the stock of experience is higher for volunteers and the return to experience is also larger for volunteers in comparison to the non-volunteers. Overall, however, volunteers who do not have a university education are rewarded slightly *less* than are non-volunteers in the same group – by about 1.4 per cent.

Interestingly, volunteering does not have a positive impact on the returns to non-university-educated individuals.

The last point to make concerns the impact of the estimated earnings differential from volunteering on the decision to volunteer (table 18). It again appears to be a statistically significant determinant of the probability of volunteering for both groups, with a marginal impact of about 6 per cent for each group.

Table 18
Structural probits with earning differential, university graduates versus non-university graduates

Variables	University graduates			Non-university graduates		
	est. coef	t-ratio	marg. eff.	est. coef	t-ratio	marg. eff.
EARNDIF	0.153	19.27	0.06	0.162	35.90	0.06
MALE	0.051	0.71	0.02	-0.001	-0.02	-0.00
MARRIED	-0.109	-1.33	-0.04	0.018	0.41	0.01
HOURS	-0.011	-3.89	-0.00	-0.009	-6.93	-0.00
				0.419	4.28	0.15
				0.607	6.20	0.22
				0.790	7.54	0.29
OWNK05	-0.068	-1.22	-0.03	-0.069	-2.07	-0.03
OWNK0612	0.197	3.69	0.08	0.266	9.49	0.10
OWNK1317	0.213	2.58	0.08	0.154	4.12	0.06
OWNK18PL	0.026	0.28	0.01	0.126	3.03	0.05
RURAL	0.346	3.50	0.14	0.109	2.68	0.04
TOWN	-0.014	-0.13	-0.01	0.017	0.31	0.01
ATLANTIC	0.213	1.44	0.08	-0.075	-1.04	-0.03
QUE	0.047	0.21	0.02	-0.085	-0.69	-0.03
PRAIRIE	0.287	2.64	0.11	0.231	4.34	0.09
BC	0.127	1.06	0.05	0.139	2.30	0.05
GOVT	-0.000	-0.66	-0.00	-0.000	-0.34	-0.00
NEWLAND	-0.362	-1.66	-0.14	-0.210	-1.02	-0.08
MEDLAND	-0.618	-2.49	-0.25	-0.161	-0.84	-0.06
OLDLAND	0.008	0.07	0.00	-0.158	-2.33	-0.06
MEDRES	-0.042	-0.32	-0.02	0.123	1.54	0.05
LONGRES	0.268	2.08	0.11	0.306	4.10	0.11
ENG	0.363	2.03	0.14	0.149	1.39	0.05
REL	0.274	3.99	0.11	0.219	5.95	0.08
AGE	-0.003	-0.76	-0.00	-0.002	-1.20	-0.00
GIVE	0.822	5.95	0.33	0.671	11.70	0.25
CONSTANT	-0.232	-0.18	-0.09	-1.722	-2.75	-0.63
# observations	1995 (974 at one)			7950 (2515 at one)		
Log likelihood (0)	-1382.3			-4961.8		

Overall, therefore, university graduates who volunteer earn about 4 per cent *more* than non-university volunteers. This result suggests that it is *not* the acquisition of skills *per se* that accounts for the labour-market reward to volunteering, rather some other mechanism like signaling or networking is at play. Moreover, one could go even further and speculate that because it is university graduates who gain from volunteering, this supports more the networking mechanism than the signaling one *per se* to the extent that a university degree itself acts as a strong signal on the labour market. It may then be less believable that volunteering would provide yet another signal about some unobservable characteristics of the individual. A stronger case can be argued that volunteering is providing highly-educated individuals with contacts through which enhanced employment opportunities are generated. This point is further reinforced by the observation that networking is less likely to help individuals in the so-called 'blue' or 'pink' collar jobs because of the innate nature of these occupations. By contrast, the success of service professions (lawyers, dentists, accountants, and so on) *hinges* on contacts and word-of-mouth recommendations.

5.2 Volunteering and Age

Separating the sample by age may shed more light on the link between volunteering and earnings. The idea is that, in comparison to young people, older people are less likely to volunteer for human-capital reasons. A significant difference between these two groups may thus help further inform why the labour market appears to reward volunteers more than non-volunteers.

Deciding how to group the sample according to age is somewhat arbitrary. At what age do people concern themselves less with human-capital acquisition? Realizing that these delineations are arbitrary, the sample is simply split into three groups: young (aged 15-29), middle (30-59) and old (60+). The hypotheses are simple: in comparison to older people, "young" people are more likely to seek out volunteering to help them enter into the job market and further their advancement through skill acquisition or even signalling. The "middle" group has likely acquired its main set of skills, but might be seeking advancement through networking, while the "old" group, in general, is less likely to be seeking advancement in their employment – to the extent that they are likely to have reached the 'top' of their occupation by their age – but are still, of course, interested in making more money.

The reduced-form probits for the three age groups are reported in table 19. We begin with the group of under 30 years of age respondents who comprise 22 per cent of the sub-sample (columns (1) and (2)). By and large, the decision to volunteer is affected by the same factors as discussed for other sub-groups. Being male has a weakly positive influence on this decision while being married exerts a negative influence. The level of education and impact of children affect the decision to volunteer in a predictable manner. There is no statistical difference across the five regions in Canada, nor does speaking English or being religious seem to matter. Only being a newly-landed immigrant has a negative impact on the decision to volunteer, other immigrants are not statistically different from non-immigrants regarding this decision. Interestingly, it is only for this sub-group of individuals under 30 years of age where the estimated coefficient on *GOVT* approaches statistical significance at just over 10 per cent. Its negative sign suggests that young people may well be considering government spending as a substitute for their own decision to volunteer.

The earnings equations of volunteers and non-volunteers in this young group behave roughly as expected (table 20). The interesting result here concerns the estimated earnings differential between volunteers and non-volunteers; whereas until now it was positive, here it is both negative and large (-3.485 on the logarithmic scale). Moreover, this earnings differential continues to exert a positive influence on the decision to volunteer, with a huge marginal impact of about 36 per cent.

Decomposing the earnings equations of volunteers and non-volunteers in the under 30 years of age category one finds further evidence that this group is behaving quite differently from other groups (table 21). Volunteers have a substantially higher stock of education as compared to non-volunteers – and the return to this education is much larger for volunteers. Another point at odds with other results concerns the difference in the constant terms between volunteers and non-volunteers – here it is negative whereas for all other sub-groups it is positive. Overall, this decomposition suggests that young volunteers earn much *lower* incomes than do young non-volunteers – in the region of 20 per cent.

Table 19

Reduced-form probits, sample separated by age

Variables	Young		Middle-aged		Old	
	est. coef.	t-ratio	est. coef.	t-ratio	est. coef.	t-ratio
MALE	0.117	1.71	0.065	1.66	0.245	1.35
MARRIED	-0.203	-2.58	-0.028	-0.65	0.060	0.33
HOURS	-0.013	-5.67	-0.006	-4.51	-0.008	-1.55
HIGH	0.890	1.83	0.321	3.09	0.718	3.16
DIPLOMA	1.064	2.17	0.549	5.25	0.609	2.36
POSTSEC	1.290	2.63	0.660	5.89	0.755	1.98
UNIV	1.375	2.77	0.885	7.93	1.116	3.24
OWNK05	-0.119	-1.83	-0.021	-0.72		
OWNK0612	0.233	1.97	0.264	11.11		
OWNK1317	0.682	0.50	0.247	8.25	0.914	0.84
OWNK18PL			0.119	3.92	-0.075	-0.42
RURAL	0.166	2.07	0.202	4.79	0.280	1.40
TOWN	0.108	1.09	0.113	2.11	0.174	0.65
MANAGER	-0.114	-0.90	-0.033	-0.51	0.428	1.40
SCIENCE	0.048	0.30	-0.134	-1.51	0.460	0.86
SOCSC	0.957	3.39	0.272	2.20	1.560	2.05
TEACH	0.362	2.31	0.181	2.03	1.327	1.77
RELIGION			0.555	1.74	0.534	1.14
HEALTH	0.050	0.30	-0.067	-0.82	-0.472	-1.09
ARTS	0.313	1.77	0.124	1.04	-0.005	-0.01
CLERK	0.009	0.09	-0.077	-1.20	0.410	1.25
SALES	0.044	0.43	-0.029	-0.40	0.551	1.94
FARM	0.273	1.31	0.093	0.87	-0.212	-0.68
FISH	0.053	0.06	-0.433	-1.20	0.409	0.34
FOREST	0.325	0.37	-0.080	-0.31	1.709	1.55
MINING	0.251	1.01	-0.259	-2.33	-0.146	-0.21
MACHINE	-0.445	-1.60	-0.353	-2.62	0.168	0.15
FABRIC	-0.363	-2.46	-0.392	-5.14	0.597	1.77
CONSTRUC	-0.278	-1.58	-0.056	-0.63	-0.040	-0.10
TRANSP	-0.423	-2.11	-0.263	-2.62	-0.568	-1.63
MATERIAL	-0.228	-1.23	-0.606	-4.07	-0.304	-0.36
ATLANTIC	-0.075	-0.52	0.018	0.23	0.145	0.39
QUE	0.061	0.30	-0.136	-1.24	-0.933	-1.84
PRAIRIE	0.146	1.48	0.267	4.68	0.002	0.01
BC	0.080	0.75	0.102	1.86	-0.186	-0.76
NEWLAND	-0.645	-2.79	-0.343	-2.48		
MEDLAND	-0.017	-0.08	-0.700	-4.72	3.016	0.03
OLDLAND	-0.051	-0.42	-0.270	-5.06	-0.662	-3.18
MEDRES	-0.107	-1.01	0.056	0.70	-0.699	-0.66
LONGRES	-0.007	-0.07	0.330	4.41	-0.330	-0.31
ENG	0.071	0.42	0.238	2.66	0.296	0.68
REL	0.019	0.32	0.240	7.08	0.384	2.06
GIVE	0.733	9.41	0.652	10.77	1.850	3.78
GOVT	-0.000	-1.60	0.000	0.08	0.000	1.39
CONSTANT	0.034	0.03	-2.045	-3.08	-6.430	-2.21
# observations	2185 (691 at one)		7315 (2617 at one)		445 (148 at one)	
Log likelihood (0)	-1363.4		-4770.5		-282.67	

Table 20
Weighted OLS earning equations,
'young' people (under 30 years of age)

Variables	Non-volunteers		Volunteers	
	est. coef.	t-ratio	est. coef.	t-ratio
MALE	0.254	3.94	0.174	3.40
MARRIED	0.042	0.58	0.020	0.29
HOURS	0.031	12.03	0.030	14.50
HIGH	0.003	0.01	0.827	1.40
POSTSEC	0.170	0.67	1.245	2.08
DIPLOMA	0.428	1.72	1.045	1.74
UNIV	0.464	1.70	1.521	2.51
HHSIZE	-0.038	-1.71	-0.031	-1.51
OWNK05	0.107	1.81	0.101	1.66
OWNK0612	-0.032	-0.28	-0.120	-1.23
OWNK1317	-1.120	-0.69	-0.247	-0.31
EXP	0.118	4.37	0.172	7.24
EXPSQU	-0.004	-1.61	-0.008	-3.63
RURAL	-0.330	-4.43	-0.153	-2.45
TOWN	-0.019	-0.21	-0.151	-2.00
MANAGER	0.411	3.48	0.212	2.08
SCIENCE	0.269	1.69	0.270	2.33
SOCSC	0.168	0.40	-0.135	-0.80
TEACH	0.320	1.83	0.119	1.13
HEALTH	0.583	3.58	0.297	2.38
ARTS	0.136	0.72	-0.042	-0.33
CLERK	0.137	1.49	0.144	1.89
SALES	0.048	0.50	-0.088	-1.12
FARM	0.114	0.58	-0.165	-1.10
FISH	-0.257	-0.51	1.297	1.56
FOREST	0.347	0.40	0.764	1.23
PROCESS	0.007	0.03	0.824	4.25
MACHINE	0.018	0.09	0.016	0.06
FABRIC	0.322	2.80	0.319	2.38
CONSTRUC	0.318	2.20	0.321	2.09
TRANSP	0.121	0.82	0.216	1.16
MATERIAL	0.142	0.93	0.107	0.67
ATLANTIC	-0.066	-0.57	-0.276	-3.01
QUE	0.109	1.38	-0.037	-0.51
PRAIRIE	-0.104	-1.35	-0.273	-4.35
BC	-0.117	-1.26	0.053	0.68
INVMILLS	-0.621	-3.62	-0.347	-2.85
CONSTANT	7.392	26.08	7.288	11.41
# observations	876		1309	
Adj. R-squared	0.4464		0.5073	

Table 21

Decomposing the volunteer/non-volunteer earnings differential according to age of individual

Variables	Young		Middle-aged		Old	
	Stock effect (%)	Return effect (%)	Stock effect (%)	Return effect (%)	Stock effect (%)	Return effect (%)
MALE	-1.27	-3.99	-3.28	0.23	-1.30	-3.21
MARRIED	-0.14	-0.95	0.08	-0.34	-0.33	-3.53
HOURS	-13.65	-3.81	-2.54	15.33	-1.95	41.96
EDUCATION	10.21	80.72	0.41	-16.83	9.68	-8.34
FAMILY	-18.80	28.74	-3.32	-9.97	-1.11	-434.18
EXPERIENCE	-9.08	11.62	-0.10	36.03	-1.72	3.45
POPULATION	-0.49	3.65	-1.14	0.27	-0.96	16.86
OCCUPATION	-3.29	-3.51	1.79	-0.44	1.16	-13.74
REGION	-2.20	-9.37	-2.39	0.15	2.10	-21.38
INVMILLS	-50.43	-13.04	-49.67	-11.52	-4.58	414.24
CONSTANT		-10.40		52.95		18.44
Total	-71.76	52.04	-60.18	65.86	0.99	10.58
	average -19.72		**average 5.68**		**average 11.58**	

How can such a result be explained? We may be observing in this young age group more under-employed volunteers who are volunteering to find better employment – but have yet to do so – whereas in the older age groups we may be picking up individuals who have actually achieved better employment through volunteering. Because the SGVP does not have any time dimension, it is difficult to discern precisely what is going on. Not surprisingly, a much larger proportion of the under 30 group works less than 35 hours a week – some 40 per cent as opposed to 22 per cent in the 30-59 age group. In other words, young volunteers may be earning less than young non-volunteers because they are working less and have yet to reap the fruits of their volunteer experience. This explanation does not provide any insights, however, into why volunteers may be rewarded on the labour market. To shed more light on this question, we turn now to the analysis of other age groups.

Individuals aged 60 years or older make up less than 5 per cent of our sub-sample.[16] Table 19, columns (5) and (6), reports the reduced-form probits for this group. We find that being male or

[16] That we have few individuals of 60 years of age or older should not be a surprise given that our sub-sample is comprised of those in the labour market.

being married seems irrelevant for their decision to volunteer, education still exerts a positive influence, the presence of children is now irrelevant, and almost no regional differences exist. Being a long-term immigrant seems to have a negative impact on the decision to volunteer whereas other immigrant variables have no effect.

The selectivity-corrected earnings equations for older volunteers and non-volunteers behave roughly as expected (table 22). It is interesting to note that experience and its squared term are statistically irrelevant for this group of older workers – which seems quite plausible given that most of these individuals would be at the end of their labour-market tenure.

The decomposition procedure yields a rather interesting result for this older group (table 21 columns (5) and (6)). Volunteers have a larger 'stock' of human capital overall in comparison to non-volunteers – which is contrary to the general pattern established up to this point. In addition, volunteers also earn a higher return to a given stock of human capital. Overall, in comparison to their non-volunteering counterparts, volunteers have an earnings differential in excess of 11.5 per cent. This result certainly suggests that acquiring skills is not the main explanation of why the labour market rewards volunteers over their non-volunteering counterparts. Given the age of the individuals in this sub-group, one might argue that the signaling explanation is also less plausible. The most believable explanation of why volunteers earn higher incomes may well be networking. Through networking, volunteers are able to take advantage of labour-market opportunities of which others are perhaps unaware. Of course, we cannot rule out the possibility that what we are observing is the cumulation of years of enhanced labour-market returns as a result of some combination of all three mechanisms. Our data set will simply not discern these intertemporal effects. Nevertheless, the fact that older volunteers earn a substantially higher return over their non-volunteering counterparts certainly reinforces the basic result of this paper: that individuals are rewarded on the labour market from their volunteer activities.

The results for the middle-aged group, which makes up most of our sub-sample (74 per cent), also point to a sizable return to volunteering. Looking directly at the decomposition procedure between volunteer and non-volunteer earnings equations (table 21, columns (3) and (4)), we find that, in comparison to non-volunteers, volunteers earn about 6 per cent higher returns on the paid labour market. Again, the fact that these individuals are likely to be more established in an

Table 22

Weighted OLS earning equations,

'old' people (60 years of age and older)

Variables	Non-volunteers		Volunteers	
	est. coef.	t-ratio	est. coef.	t-ratio
MALE	0.215	1.87	0.506	4.38
MARRIED	-0.011	-0.07	-0.062	-0.50
HOURS	0.010	2.94	0.009	2.88
HIGH	-0.109	-0.78	0.599	3.20
POSTSEC	0.209	0.87	0.692	3.36
DIPLOMA	0.303	1.63	0.798	2.80
UNIV	0.400	1.56	0.754	2.95
HHSIZE	0.028	0.27	-0.019	-0.45
OWNK1317	-1.260	-1.77	-0.140	-0.23
OWNK18PL	0.258	1.78	0.219	1.74
EXP	0.129	1.46	-0.040	-0.41
EXPSQU	-0.001	-1.24	0.001	0.57
RURAL	-0.448	-2.81	-0.315	-2.70
TOWN	-0.035	-0.17	-0.248	-1.55
MANAGER	0.498	2.34	0.429	2.33
SCIENCE	0.039	0.10	0.291	0.86
SOCSC	0.337	0.35	0.438	1.34
TEACH	-0.896	-1.84	0.567	1.78
RELIGION	-0.334	-0.91	-0.646	-2.48
HEALTH	0.390	1.47	0.352	1.12
ARTS	-0.048	-0.13	0.377	1.27
CLERK	0.113	0.56	0.193	0.94
SALES	-0.340	-2.00	0.092	0.51
FARM	-0.066	-0.33	0.031	0.15
FISH	-0.336	-0.40	1.206	1.65
FOREST	-1.431	-1.09	0.647	1.45
PROCESS	-0.017	-0.05	-0.589	-1.06
FABRIC	-0.459	-2.47	0.302	1.31
CONSTRUC	-0.206	-0.80	0.446	1.47
TRANSP	0.249	1.36	0.038	0.14
MATERIAL	0.872	1.82	-0.156	-0.23
ATLANTIC	0.036	0.16	-0.219	-1.19
QUE	0.125	0.83	-0.156	-0.81
PRAIRIE	0.153	1.06	0.090	0.77
BC	0.092	0.56	-0.147	-1.04
INVMILLS	-0.458	-2.15	-0.035	-0.19
CONSTANT	5.547	2.36	9.690	3.98
# observations	156		289	
Adj. R-squared	0.3083		0.2522	

occupation in comparison to the younger group does suggest that the explanation for this labour market effect is not skill acquisition *per se*. Arguably, it is less likely that signaling play as important a role for middle-aged individuals – surely their previous job experience would provide sufficient information in that regard – leading one to speculate that networking provides the means by which volunteers better themselves on the paid labour market.

To explore further the networking explanation, we returned to the SGVP data set. Indeed, several variables are included in the SGVP which may provide some insight into the strength of the networking argument. For instance, individuals were asked if they volunteered for business and professional organizations, business associations and professional associations. Arguably, volunteering for these sorts of organizations would be motivated more from a networking perspective than a human capital one. To see whether this type of volunteering mattered, a dummy variable was created which took on the value one whenever an individual volunteered for service, business, or professional clubs, and zero otherwise. Although about 18 per cent of our sample volunteered for such clubs, there was no discernible difference between the income of these individuals and of others.

In many ways, it should not be surprising that simply looking at whether an individual belongs to certain types of voluntary organizations does not provide enough information regarding the importance of networking. While 'clubs' certainly provide a rich milieu for fostering contacts – they are by no means the only way to network. Leisure activities, sports clubs, and cultural activities are among the myriad of volunteer organizations which may fuel networking endeavours. Furthermore, networking depends, by definition, on a 'network' of individuals looking after each other; thus, it takes more than simply putting people together for some common goal. While necessary, membership in the right 'club' is not sufficient to ensure that lucrative networking will indeed occur.[17] Unfortunately, the static nature of the SGVP data set limits our ability to explore further the phenomenon of networking.

[17] It is interesting to note that 18 per cent of men and women volunteer for service and business clubs. That the labour market appears to reward men from volunteering but not women certainly suggests that the 'old-boys network' continues to be alive and well.

6. The Labour Market and Volunteering: Concluding Remarks

This paper had several objectives, the first of which was to re-do the analysis of Day and Devlin (1998) to compare the findings of the earlier VAS survey with that of the new SGVP. The results of that exercise are quite remarkable: using a sub-sample that largely mimics the data used in the earlier study, one finds that volunteers continue to earn a differential of about 7 per cent over their non-volunteering counterparts. However, the sub-samples used in these analyses were restricted to single-wage earner households – which were predominantly male. The new SGVP survey contains better information on individuals' earnings, hence facilitating an expanded analysis into the labour market effects of volunteering.

For the expanded analysis, three questions were basically posed: *what* is the impact of volunteering on the labour market; *for whom* is this impact most pronounced; and, *why* would the labour market treat volunteers differently from non-volunteers. Several econometric hurdles had to be overcome in order to address these questions. Overall, the Heckman two-stage procedure, modified to account for any expected earnings differential, seemed to yield the most sensible and robust results. To determine the actual earnings differential between volunteers and non-volunteers, a decomposition procedure along the lines of Blinder (1973) and Oaxaca (1973) is employed.

Using a sample of 9,945 of working individuals (either full-time or part-time), we found that, on average, volunteers earned a premium of over 4 per cent in comparison to their non-volunteering counterparts. This payoff is less than the 7 per cent estimated from the single-wage earner household sample which is not surprising given that the expanded sample contains many more individuals who are working part-time and relatively more women.

To answer the question for whom the labour market effects of volunteering are most pronounced, the sample was disaggregated in several ways. The first result is that male volunteers are rewarded much more than their female counterparts: males receive a premium of about 14 per cent whereas female volunteers earn only about 2 per cent more than do female non-volunteers. Second, we found that university graduates who also volunteer earn about 4 per cent more than non-university graduate volunteers. Lastly, the analysis of the paper showed that the age of the

volunteer mattered a lot when looking at the labour market impact of having volunteered. Young volunteers (under 30 years of age) actually earned about 20 per cent *less* than young non-volunteers; middle-aged volunteers, by contrast, earned 6 per cent more than middle-aged non-volunteers; and volunteers 60 years of age and older (who were also employed) earned almost 12 per cent more than their non-volunteering counterparts. To understand why these various groups may be treated differently, we turn to the last question to be addressed – namely, why volunteers are rewarded on the paid labour market.

The literature identifies three main reasons why volunteering may affect the labour market: human capital acquisition, signaling and networking. While the data set cannot distinguish categorically among these three mechanisms, we can speculate about the most plausible explanation given the results obtained from our empirical analysis. For instance, if skill acquisition were the main mechanism, then one would expect, *a priori*, that all individuals acquiring the same set of skills would be treated equally on the market. The same sort of argument could be made if the act of volunteering emitted a signal to potential employees about some unobservable, but desirable, traits. That the men and women in our sample appear to be evenly distributed among the various types of volunteer organizations, yet are so disparately treated on the labour market, casts some doubt on these two explanations. This result seems to be more consistent with the notion that volunteers are rewarded on the paid labour market because of the contacts they make while undertaking their philanthropic activities. To the extent that networks discriminate between those who are 'in' and those who are not (as opposed to discriminating between those who have the right to participate in a given organization and those who do not), then this may well explain the large gap in earnings accorded male and female volunteers.

Other results also point more to the networking explanation rather than the other two explanations. For instance, one would not expect that university graduates would volunteer to acquire skills. Furthermore, the signal associated with being a graduate would surely dominate any signal emanating from volunteering – leading, again, to networking as being the most plausible explanation for the earnings differential between university graduates and non-university graduates.

We also found that age is important when it comes to determining the payoff to volunteering. Young volunteers actually earned much less in comparison to non-volunteers, while older volunteers earned much more in comparison to non-volunteers. These results suggest that perhaps volunteering should more usefully be considered as an investment towards future labour market returns,[18] rather than as something which has an immediate impact. It would be the underemployed young people who are most likely to volunteer early in their working life, with the labour market gains being reaped as they get older. The enormous earnings gap between older volunteers and non-volunteers (almost 12 per cent) certainly points to a cumulative effect from volunteering over time.

In sum, it would seem that networking is the most consistent explanation for the labour-market returns to volunteering for the analyses undertaken in this paper. This does not mean that the other mechanisms are not at play as well; we are simply suggesting that networking is likely to be the dominant effect.

Although this paper focuses on the links between volunteering and the labour market, it necessarily had to examine the various influences on the decision to volunteer, hence revealing other interesting phenomena as well. One of these phenomena is the link between volunteering and so-called "social capital." As one measure of an individuals' commitment to his or her community, this paper looked at the extent to which tenure of residence in the same abode affected the decision to volunteer. Remarkably, the results were exactly the same irrespective of which sub-group was examined: whether or not an individual is a new resident (less than one year) or a medium resident (one to five years) has no impact on the decision to volunteer; however, those who have lived in the same dwelling for at least five years are *more* likely to volunteer in comparison to others. This result holds true when the sample is separated by sex, educational level and age. Thus, long-term residents who perhaps feel a stronger commitment to their community are more likely to volunteer in comparison to those who have a shorter tenure in the same dwelling. Feeling more connected to a community, therefore, promotes volunteerism. To the extent that social capital (or social cohesion) contributes positively to the welfare of

[18] Again, it must be stressed that this paper is considering only the labour market motivations for volunteering – in no way do we think that this is the only or indeed most important reason why individuals volunteer.

individuals, it would be instructive to pursue further this link between volunteering and social capital.

References

Bilodeau, M., and A Slivinski, "Toilet Cleaning and Department Chairing: Volunteering a Public Service," *Journal of Public Economics*, 59, 1996, 299-308.

Blinder, A. S., "Wage Discrimination: Reduced Form and Structural Estimates," *Journal of Human Resources* 1973, 18(4), 436-455.

Brown, E., and H. Lankford, "Gifts of Money and Gifts of Time: Estimating the Effects of Tax Prices and Available Time," *Journal of Public Economics*, 1992, 47, 21-41.

Clotfelter, C. T., *Federal Tax Policy and Charitable Giving*, Chicago: University of Chicago Press, 1985.

Day, K. M., and R. A. Devlin, "Volunteerism and Crowding Out: Canadian Econometric Evidence," *Canadian Journal of Economics*, 1996, 29(1), 37-53.

Day, K. M., and R. A. Devlin, "Can Volunteer Work Help Explain the Male-Female Earnings Gap?," *Applied Economics*, 1997, 29, 707-721

Day, K. M., and R. A. Devlin, "The Payoff to Work without Pay: Volunteer Work as an Investment in Human Capital," *Canadian Journal of Economics*, 1998, 31(5), 1179-1191.

Dicken, B., and R. Blomberg, "Evaluate Volunteer Experience of Women Reentering the Work Force," *Personnel Journal* 1988, 67, 94-99.

Duncan, G. M., and D. E. Leigh, "The Endogeneity of Union Status: An Empirical Test," *Journal of Labor Economics*, 1985, 3(3), 385-402.

Emanuele, R., "Is there a (Downward Sloping) Demand Curve for Volunteer Labour?," *Annals of Public and Cooperative Economics*, 1996, 67(2),193-208.

Freeman, R. B., "Working for Nothing: The Supply of Volunteer Labor," *Journal of Labor Economics*, 1997, 15(1 pt.2), S140-S166.

Greene, W. H., *Econometric Analysis*, second edition, New York: MacMillan Publishing Company, 1993.

Heckman, J., "Sample Selection Bias as a Specification Error," *Econometrica*, 1979, 47(1):153-61.

Lee, L.-F., "Unionism and Wage Rates: A Simultaneous Equation Model with Qualitative and Limited Dependent Variables," *International Economic Review*, 19, 1978, 415-433.

Menchik, P. L., and B. A. Weisbrod, "Volunteer Labor Supply," *Journal of Public Economics*, 1987, 32(1),159-183.

Miller, P.W., "Gender Differences in Observed and Offered Wages in Canada, 1980," *Canadian Journal of Economics*, 1987, 20(2), 225-244.

Mueller, M. W., "Economic Determinants of Volunteer Work by Women," *Signs*, 1975, 1(2), 325-338.

Oaxaca, R., "Male Female Wage Differentials in Urban Labor Markets," *International Economic Review*, 1973, 14(3), 693-709.

Oaxaca, R.L., and M.R. Ransom, "On Discrimination and the Decomposition of Wage Differentials," *Journal of Econometrics*, 1994, 61(1), 5-21.

Putnam, Robert, "Tuning In, Tuning Out: The Strange Disappearance of Social Capital in America," *Political Science and Politics*, 1995, 664-683.

Rekart, J., *The Transformation of the Voluntary Sector*, Social Planning and Research Council of BC, 1997, 215 pages.

Robinson, C., "The Joint Determination of Union Status and Union Wage Effects: Some Tests of Alternative Models," *Journal of Political Economy*, 1989, 97(2), 639-667.

Saloner, G., "Old Boy Networks as Screening Mechanisms," *Journal of Labor Economics*, 1985, 3(3): 255-267.

Schram, V. R., and M. M. Dunsing, "Influences on Married Women's Volunteer Work Participation," *Journal of Consumer Research*, 1981, 7(March), 1981, 371-379.

Stewart, M. B., "On Least Squares Estimation when the Dependent Variable is Grouped," *Review of Economic Studies*, 1983, 50, 737-753

Thompson, A. M., and B. A. Bono, "Work Without Wages: The Motivation for Volunteer Firefighters," *American Journal of Economics and Sociology*, 1993, 52(3), 323-343.

Vaillancourt, F., "To Volunteer or Not: Canada, 1987," *Canadian Journal of Economics*, 1994, 27, 813-826.

Weeks, J. and P. Aggleton, "Community and Contacts: Tensions and Dilemmas in the Voluntary Sector Response to HIV and AIDS," *Policy Studies*, 1996, 17(2), 107-123.

White, H., "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity," *Econometrica*, 1980, 48, 817-838.

Woolley, F., "Social Cohesion and Voluntary Activity: Making Connections," in L. Osberg (ed.) *The Economics of Social Cohesion*, Toronto: University of Toronto Press, forthcoming.